HORIZON EUROPE CALLS 2023/2024

CLUSTER 5
CLIMATE, ENERGY AND MOBILITY

NTNU in Europe: List of calls with their respective interested NTNU researchers

Produced by: NTNU Brussels Office, NTNU Energy

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INTRODUCTION

Dear Reader,

Are you looking for the best researchers with whom to collaborate on Horizon Europe cluster 5 calls? Then please, read on.

At NTNU, the Norwegian University of Science and Technology, we have matched our researchers to the upcoming Horizon Europe 2023/2024 calls, based on both their expertise and the industry relations they can bring to the table.

As the largest university in Norway, we can be a powerful partner and collaborator. With more than 85 funded projects, of which 53 are already signed (accounting for more than € 32 million in funding) at the time of writing, we are setting even more ambitious targets for Horizon Europe 2023/2024 and going forward.

This document is one of six prospectuses that outline areas of expertise for - and of interest to - NTNU researchers, for each of the upcoming six clusters of Horizon Europe.

They are living documents. Even if you do not find an exact match, our research community would be thrilled to open a collaborative dialogue with you. Just ping a message to one of our institutional contact points, like NTNU's Brussels Office.

Together, we can create true "knowledge for a better world"

Tor Grande
Pro-rector of Research

NTNU | Norwegian University of Science and Technology

ABOUT NTNU

NTNU is a university with an international focus, with headquarters in Trondheim and campuses in Ålesund and Gjøvik. NTNU has a main profile in science and technology, a variety of programmes of professional study, and great academic breadth, including medicine, architecture, and entrepreneurship.

KEY NUMBERS FOR 2022

NOK 10 billion	44 169	7953	415
annual budget	**students**	**FTE**	**doctoral degrees**

NTNU offers 397 programmes of study (2022), as well as continuing and further education. The university has the main responsibility for higher education in technology in Norway, and largest in engineering, teacher education and architecture. NTNU aims to be a national hub in programmes of professional study.

NTNU is the institution awarded the most funding from the Research Council in Norway, as well as being granted with 255 signed projects and a total funding of more than €141 million from Horizon 2020. Moreover, NTNU is a host or partner for 46 major research centers (SFF, SFI, and FME), and has internal initiatives to develop and recruit top researchers.

In Horizon Europe (HEU) - as of March 2023 - NTNU has 97 funded projects, of which 77 are already signed (accounting for more than € 46 million in funding), positioning NTNU among the top HEU Norwegian actors, and among the top 10 actors within the European Higher Education Sector in HEU.

Beyond its science and technology profile, NTNU covers a broad range of social science and humanities (SSH) disciplines including sociology, political science, education, psychology, economics, history, cultural sciences and the arts. Researchers from SSH disciplines have successfully addressed societal issues and contributed to social innovation through involvement in more than 30 HEU projects so far, presenting NTNU as promising and strong partner in future European collaborations in all Global Challenge clusters under Horizon Europe.

From 2014-2023, NTNU has identified several strategic research areas and enabling technologies:

NTNU Energy | NTNU Health | NTNU Oceans | NTNU Sustainability

NTNU BIOTECHNOLOGY | NTNU DIGITAL | NTNU NANO

NTNU BRUSSELS OFFICE

The NTNU Brussels Office represents NTNU in Brussels, provides strategic advice on European policies, promotes NTNU positions, manages or participates in strategic networks and initiatives in Brussels, and provides professional services to the NTNU community based on its Brussels presence.

The office represents both «the door to NTNU» for organizations that want to collaborate and create synergies with NTNU, and «the door to Europe» for colleagues active in or willing to enter the European Arena.

NTNU opened the doors of its Brussels Office in 2015 and today the staff consists of four people, Director Massimo Busuoli, one senior adviser and two trainees.

The office activities and services include the following:

- Promotion and representation of NTNU in Brussels
- Positioning of NTNU in relevant Brussels-based initiatives and bodies
- Contribution to improve NTNU's EU project portfolio
- Provide internship opportunities for NTNU employees and students
- Provision of logistic support and services in Brussels

Energy research at NTNU

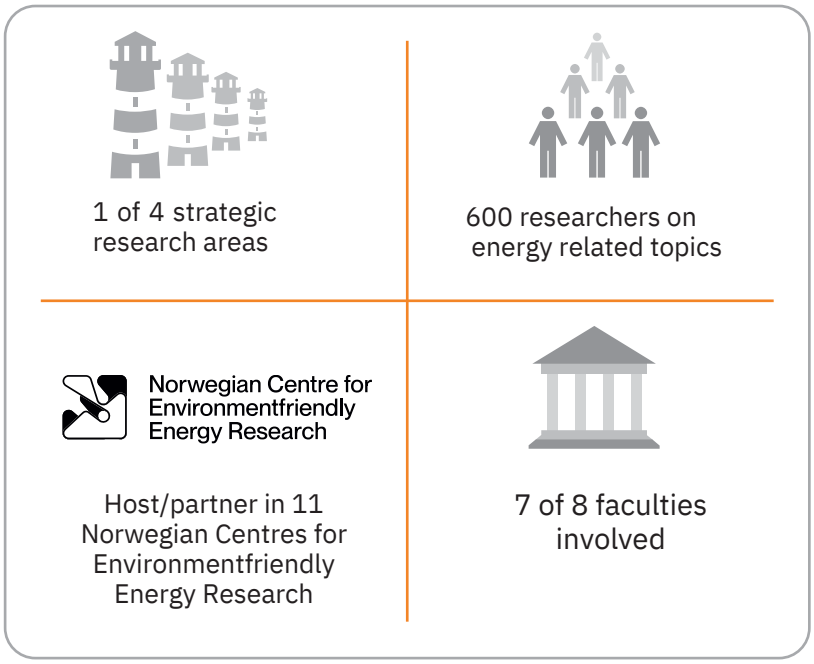
The energy research at NTNU covers a large range of activities. It includes but is not limited to stationary energy systems, energy in transport systems, energy efficiency, energy in buildings, neighbourhoods and industry, etc.

NTNU ENERGY

NTNU Energy is one of the university's four strategic research areas and gathers 600 competent energy researchers, teaching and technical personnel that work on energy-related topics. In total, researchers from seven out of NTNU's eight faculties conduct energy research.

NTNU Energy is an entry point to the energy research at NTNU for industry, authorities and researchers. We boost interdisciplinary research, collaboration and innovation through developing strategies, initiating activities and creating meeting places. In addition, we raise important issues and give research-based input to energy-related topics in the public debate.

One of NTNU Energy's central activities is to establish and support nine interdisciplinary research teams that address current issues in the energy field and society at large. The teams' topics are hydrogen, batteries, wind power (on- and offshore), carbon capture, utilisation and storage (CCUS), low- and middle-income countries, society, smartgrid, solar energy and hydropower.



NORWEGIAN CENTRES FOR ENVIRONMENTFRIENDLY ENERGY RESEARCH

NTNU Energy collaborates with eleven Norwegian Centres for Environmentfriendly Energy Research which are funded by the Research Council of Norway and work closely with industry and public authorities. NTNU Energy supports them by taking strategic initiatives across disciplines and providing communication assistance in order to generate more innovation from energy research.

The Norwegian Centres for Environmentfriendly Energy Research carry out long-term research targeted towards renewable energy, energy efficiency, CCS and social science aspects of energy research. The centres must demonstrate the potential for innovation and value creation. Research activities are carried out in close collaboration betwe-en research groups, trade and industry, and the public admi-nistration, and key tasks include international cooperation and researcher training. The centres are established for a period of maximum eight years.

Out of the eleven Norwegian Centres for Environmentfriendly Energy Research, NTNU hosts three: Hydrocen on hydro power, NTRANS on the role of the energy system in the energy transition and ZEN on zero emission neighborhoods in smart cities. The eight remaining Centres NTNU is a partner in: NorthWind, NCCS, CINELDI, HighEFF, Bio4Fuels, MoZEES, SUSOLTECH and HYDROGENi.

Find out more about the energy research at NTNU, the interdisciplinary energy research teams and the Norwegian Centres for Environmentfriendly Energy Research on our website:
https://www.ntnu.edu/energy

ENERGY TRANSITION TOPICS AT NTNU

- Renewable energy sources (solar, hydropower, wind, bio energy)
- Energy storage and carriers (batteries, hydropower, hydrogen)
- Energy efficiency in industry, buildings and neighbourhoods in smart cities
- New energy systems (smart grids)
- Zero emission mobility (land-based and maritime)
- Carbon capture, utilization and storage (CCUS)
- Politics, innovation and public engagement for sustainable energy
- A just energy transition

THE NINE INTERDISCIPLINARY ENERGY RESEARCH TEAMS

Director **Prof. Johan Hustad**

Head of communications **Annika Bremvåg**

EiT InnoEnergy **Karl Klingsheim**

Scientific coordinator **Eleni Patanou**

Project coordinator China: **Qiaoqiao Wang**

Communications // Innovation // Funding // EU // Collaboration

Team Wind
Leader:
Prof. Trond Kvamsdal

Team Hydrogen
Leader:
Assoc. Prof. Nicola Paltrinieri

Team Battery
Leader:
Prof. Ann-Mari Svensson

Team CCUS
Leader:
Prof. Hanna Knuutila

Team Society
Leader:
Prof. Tomas Moe Skjølsvold

Team LMIC
Leader:
Prof. Ole Jørgen Nydal

Team Solar
Leader:
Assoc. Prof. Steve Völler

Team Smart Grid
Leader:
Prof. Irina Oleinikova

Team Hydropower
Leader:
Prof. Tor Haakon Bakken

More information: *https://www.ntnu.edu/energy*

NTNU'S PARTICIPATION IN EU PROJECTS

HORIZON 2020

Societal Challenge:
secure, clean and efficient energy

€21 million

31 projects

4th place

among 53 universities

15th place

among all kinds of organizations

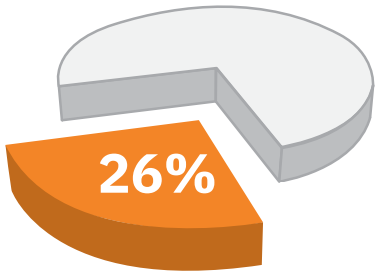
HORIZON EUROPE

Cluster 5: Climate, energy and mobility & Joint Undertakings

€7.5 million

14 projects

26% awarded applications



All data on this page as of November 2022

YOU WILL MEET NTNU'S ENERGY RESEARCHERS IN THE FOLLOWING EU PLATFORMS:

EERA European Energy Research Alliance

EMIRI Bridging the Innovation Gap

eawe european academy of wind energy

EUROPEAN BATTERY ALLIANCE EBA250

eit RawMaterials

FCH FUEL CELLS AND HYDROGEN JOINT UNDERTAKING

Hydrogen Europe

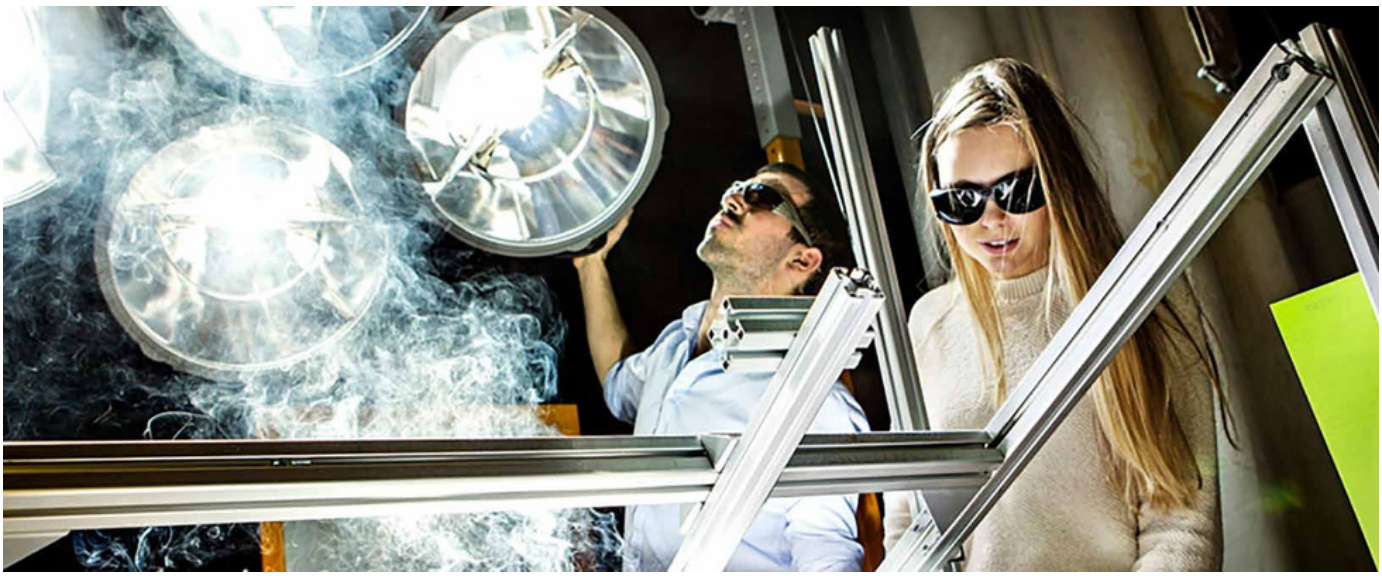
BATTERIES EUROPEAN PARTNERSHIP (BEPA)

HySafe

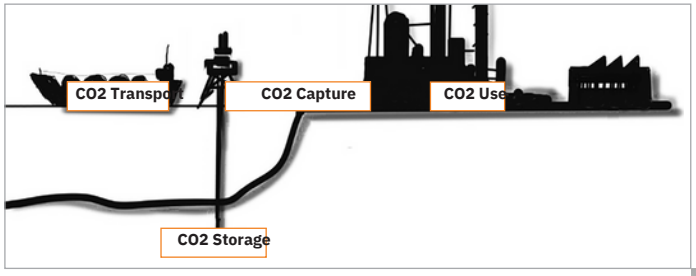
eit InnoEnergy

European Clean Hydrogen Alliance

EUROPEAN GREEN HYDROGEN ACCELERATION CENTER (EGHAC)

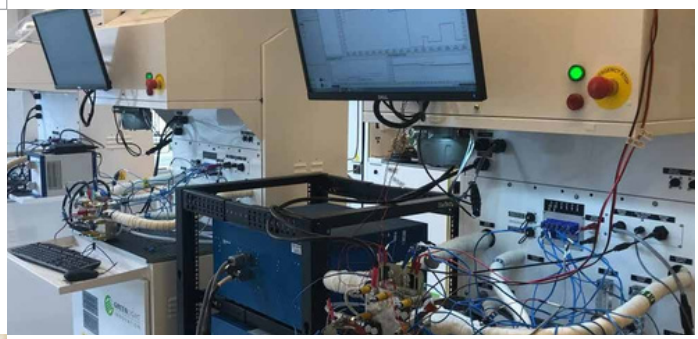


NTNU has more than 200 laboratories. Some of NTNU's labs relevant to energy research are displayed on the following pages.



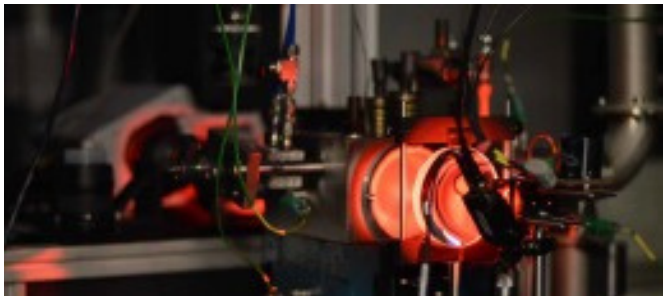
The European Carbon Dioxide Capture and Storage Laboratory Infrastructure (ECCSEL) is a permanent pan-European distributed research infrastructure, ERIC (European Research Infrastructure Consortium). 21 service providers, NTNU being one of them, offer open access to more than 79 world class CCS research facilities across Europe.
More information: ***www.eccsel.org/***

The Norwegian Fuel Cell and Hydrogen Centre is a set of advanced laboratories with the required instrumentation and personnel to facilitate high quality research, the development of compo- nents, and the testing and validation of systems for fuel cells and electrolysers.
More information: ***www.sintef.no/projectweb/nfch/***



NTNU NanoLab is one of 4 cleanrooms within the Norwegian Micro- and Nanofabrication Facility (NorFab). It is run by a staff of 9 engineers and has 700 m2 cleanroom facilities with cleanliness ranging from ISO7 to ISO5 and vibration reduced zones at VCF-level.
More information: ***www.ntnu.edu/nano/nanolab***

The National Smart Grid Laboratory provides state-of-the-art infrastructure for the demonstration, verification, and testing of a wide range of smart grid use cases, testing the smart grids of tomorrow.
More information: ***www.ntnu.edu/smartgrid***

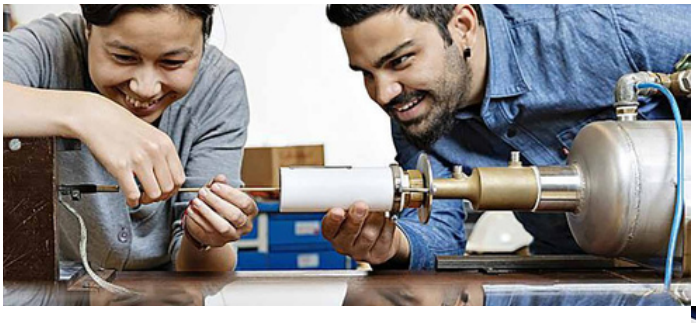


In **the Internal Combustion Engine Laboratory**, a Mercedes compression ignition engine is fitted to a Stuska water brake and used with a range of fuels, including 1st generation and 2nd generation biofuels.
More information: ***www.ntnu.edu/ept/internal-combustion-engine-laboratory***

The Hybrid Power Systems Laboratory provides experimental facilities to test different types of hybrid power systems applicable to green shipping for educational and research purpose.
More information: ***www.ntnu.edu/imt/lab/hybrid***

The MANULAB has 11 laboratories for state-of-the-art manufacturing research. It comprises advanced scientific equipment and facilities, a scientific database and e-infrastructur
More information: *www.ntnu.edu/ivb/manulab*

The Micro- and Nanoscale Design Laboratory is funded by the ERC Starting Grant 2020 and addresses functional materials from the nano- to the mesoscale.
More information: *www.microandnanoscaledesign.com/*



In **the High Current / Circuit Breaker Laboratory**, a grid-connected high current test facility together with precise synchronization and control circuitry enables experimental investigations on various switching phenomena in power circuit breakers as well as high current testing of other power equipment.
More information:
www.ntnu.edu/iel/high-current-/-circuit-breaker-laboratory

The Fluid Mechanics Laboratory and Wind Tunnel include several facilities designed for the investigation of fundamental fluid mechanics problems.
More information:
www.ntnu.edu/ept/laboratories/aerodynamic

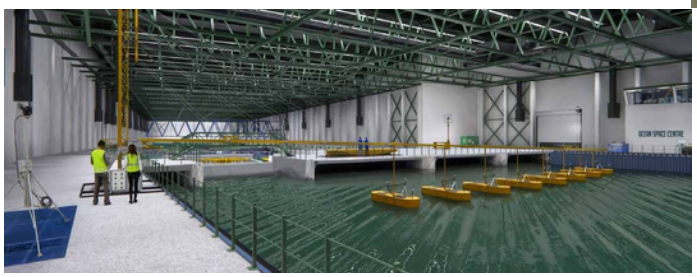
The Ocean Basin Laboratory has a depth of 10 metres and a water surface of 50x80m. It is excellent for investing existing or future challenges within marine structures and operations. A total environmental simulation including wind, waves and current offers a unique possibility for testing models in realistic conditions.
More information:
www.sintef.no/en/all-laboratories/ocean-laboratory/

The Waterpower Laboratory offers state-of-the-art facilities that are unique in Europe. It includes a high-pressure pumping system, a long conduit to investigate discharge measurement techniques, and several other test facilities for basic research in fluid mechanics including turbines, hydraulics, geology/tunnels, etc.
More information:
www.ntnu.edu/ept/laboratories/waterpower#/view/about

The Solar Simulator Laboratory is used for absorber testing with an assembly of strong 7 lamps as a setup.
More information:
www.ntnu.edu/ept/solarlab#/view/publications

NTNU's 20 kW Solar Rooftop Installation is connected to the National Smart Grid Laboratory and consists of 62 panels in 11 different angles and azimuth orientations.
More information:
www.ntnu.edu/web/energy/solar/infrastructure

The Daylight Laboratory includes an artificial overcast sky, an artificial sun for research, and an artificial sun for teaching. **More information:**
www.ntnu.edu/web/energy/solar/infrastructure



The Norwegian Ocean Technology Centre is Norway's future national knowledge centre for ocean space technology. It includes updated, state-of-the-art laboratories on a floor- space of 49.000 m2. The budget is around NOK 7.7 billion. **More information:**
www.ntnu.no/norskhavteknologisenter/

COLLABORATING WITH NTNU

As the largest Norwegian university with high multidisciplinary nature, NTNU offers a wide range of expertise and competences. Specific mapping of available researchers willing to collaborate on Horizon Europe have been performed for all clusters, producing documents similar to this brochure.

Make sure you have the latest version avaible by downloading it from this website.

Should you be interested to explore collaboration opportunities in areas not present in any of these brochures, you can get in touch with the institutional entry points of the university.

ENTRY POINTS

NTNU Brussels Office

Faculty EU advisors:

AD - Faculty of Architecture and Design
Tone Woie Alstadheim and Srutarshi Pradhan

HF - Faculty of Humanities
Chamila Thushari Attanapola

IE - Faculty of Information Technology and Electrical Engineering
Natalie Søyseth and Filip Jessen

IV - Faculty of Engineering
Ingunn Syrstad Bøgeberg and Miriam K. Khider

MH - Faculty of Medicine and Health Sciences
Emma Louise Walton

NV - Faculty of Natural Sciences
Thais Mothe-Diniz and Eugen Gravningen Sørmo

SU - Faculty of Social and Educational Sciences
Bård Li and Jens Rohloff

ØK - Faculty of Economics and Management
Thomas Aarnseth

VM - NTNU University Museum
Astrid Johansen

NTNU in Gjøvik
Anne Hilde Ruen Nymoen

NTNU in Ålesund
Medya Temelli Fenerci

ASSOCIATED RESEARCHERS

Destination 1: Climate sciences and responses for the transformation towards climate neturality

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 1.

The following pages are sorted into the calls for the destination presented in the draft for cluster 5. To simplify your navigation among available expertise per topic, the list of topics have been made clickable.

DESTINATION 1 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Climate sciences and responses.

Earth system science.

HORIZON-CL5-2024-D1-01-01: Enhanced quantification and understanding of natural and anthropogenic methane emissions and sinks.

HORIZON-CL5-2024-D1-01-02: Inland ice, including snow cover, glaciers, ice sheets and permafrost, and their interaction with climate change.

HORIZON-CL5-2024-D1-01-03: Paleoclimate science for a better understanding of the short- to long-term evolution of the Earth system..

Climate change mitigation, pathways to climate neutrality.

HORIZON-CL5-2024-D1-01-04: Improved toolbox for evaluating the climate and environmental impacts of trade policies.

HORIZON-CL5-2024-D1-01-05: Next generation low-emission, climate-resilient pathways and NDCs for a future aligned with the Paris Agreement

HORIZON-CL5-2024-D1-01-06: The role of climate change foresight for primary and secondary raw materials supply.

Climate-ecosystem interactions.

HORIZON-CL5-2024-D1-01-07: Quantification of the role of key terrestrial ecosystems in the carbon cycle and related climate effects.

HORIZON-CL5-2024-D1-01-02: Inland ice, including snow cover, glaciers, ice sheets and permafrost, and their interaction with climate change

Richard Hann

Department of Engineering Cybernetics
Faculty of Information Technology and Electrical Engineering

Contact information
richard.hann@ntnu.no
+4748020891

Relevant links outside academia
- UBIQ Aerospace
- VTT Finland
- DLR Germany

Expertise
- Atmospheric icing
- UAV, UAM, AAM
- Computational Fluid Mechanics (CFD)
- Icing CFD
- Pathplanning for UAVs
- Ice detection

Expertise specific to this call:
UAV aircraft that can fly in icing conditions

Relevant projects
Several RCN projects, IPN, ITKPLUSS

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
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+47 41394838

Relevant links outside academia
- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise
- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects
- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

HORIZON-CL5-2024-D1-01-04: Improved toolbox for evaluating the climate and environmental impacts of trade policies

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
New approaches on combining modelling disciplines: energy system modelling, CGE models, LCA and others

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HE projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Rita Bouman

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

rita.tatiana.oliveira@gmail.com
+4773596768

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Energy justice, Socio-ethical analysis and assessment,

Relevant projects

FME North Wind,
NTRANS- Norwegian Centre for Energy Transition Strategies,
EU Project PATTERN - Providing operational economic appraisal methods and practices for decision-making on climate and environmental polices,
Hydrogen Pathways 2050

HORIZON-CL5-2024-D1-01-05: Next generation low-emission, climate-resilient pathways and NDCs for a future aligned with the Paris Agreement

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Expertise in developing pathways for the EU transition and quantification of impacts

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HE projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Rita Bouman

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

rita.tatiana.oliveira@gmail.com
+4773596768

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Energy justice, Socio-ethical analysis and assessment,

Relevant projects

FME North Wind,
NTRANS- Norwegian Centre for Energy Transition Strategies,
EU Project PATTERN - Providing operational economic appraisal methods and practices for decision-making on climate and environmental polices,
Hydrogen Pathways 2050

Irina Oleinikova

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

irina.oleinikova@ntnu.no
+47 485 08 251

Relevant links outside academia

Cooperation with Statnett

Expertise

Power System Operation and Analisys, Power System Protection and Control TSO-DSO coordination, Flexibility for resilience

Expertise specific to this call:
Experience in climat-resilient studies.

Relevant projects

Various projects under H2020, ERA-Net, and Research Council of Norway initiatives.

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Xu Lu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xu.lu@ntnu.no
+4792257159

Expertise to this specific call
Mechanical testing and characterization of metallic materials in hydrogen environment.

Expertise
Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and ex-situ hydrogen environment, including slow strain rate testing, fatigue testing, microcantilever bending, micropillar compression, nanoindentation testing.
- Advanced technique for studying hydrogen uptake, diffusion and trapping behavior using thermal desorption spectroscopy, permeation testing.
- Advanced materials characterization technique including SEM, EBSD, EDS, ECCI, FIB, AFM, TEM, APT.

Relevant links outside academia
Industrial partners: Equinor, Aker Solution, Voestalpine AG, Böhler Edelstahl GmbH & Co KG, Total Energy, FORCE Technology, IceTec.

University: RWTH-Aachen University, Ghent University, La Rochelle University, Curtin University, University of Burgos.

Research centers: SINTEF, SWERIM, Max-Plank-Institute of iron research.

Relevant projects
Multiscale Hydrogen Embrittlement Assessment for Subsea Conditions (M-HEAT)

Safe Pipelines for Hydrogen Transport (HyLINE)

High strength hydrogen resistant alloys (HyResMat) project within the COMET-K2-Center MPPE

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

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+4740649405

Relevant links outside academia
industry, public sector, NGOs

Expertise
Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects
H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D1-01-06: The role of climate change foresight for primary and secondary raw materials supply

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

ASSOCIATED RESEARCHERS

Destination 2: Cross-sectoral solutions for the climate transition

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 2.

The following pages are sorted into the calls for the destination presented in the draft for cluster 5. To simplify your navigation among available expertise per topic, the list of topics have been made clickable.

DESTINATION 2 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Cross-sectoral solutions for the climate transition.

A competitive and sustainable European battery value chain.

HORIZON-CL5-2023-D2-02-01: Advanced materials and cells development enabling large-scale production of Gen4 solid-state batteries for mobility applications (Batt4EU Partnership)

HORIZON-CL5-2023-D2-02-02: New Approaches to Develop Enhanced Safety Materials for Gen 3 Li-Ion Batteries for Mobility Applications (Batt4EU Partnership)

HORIZON-CL5-2023-D2-02-03: Creating a digital passport to track battery materials, optimize battery performance and life, validate recycling, and promote a new business model based on data sharing (Batt4EU Partnership)

Call - Cross-sectoral solutions for the climate transition.

A competitive and sustainable European battery value chain.

HORIZON-CL5-2024-D2-01-01: Advanced sustainable and safe pre-processing technologies for End-of-Life (EoL) battery recycling (Batt4EU Partnership)

HORIZON-CL5-2024-D2-01-02: Non-Li Sustainable Batteries with European Supply Chains for Stationary Storage (Batt4EU Partnership)

HORIZON-CL5-2024-D2-01-03: Development of technical and business solutions to optimise the circularity, resilience, and sustainability of the European battery value chain (Batt4EU Partnership)

Emerging breakthrough technologies and climate solutions.

HORIZON-CL5-2024-D2-01-04: Emerging energy technologies for a climate neutral Europe

DESTINATION 2 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Cross-sectoral solutions for the climate transition.

A competitive and sustainable European battery value chain.

HORIZON-CL5-2024-D2-02-01: Sustainable high-throughput production processes for stable lithium metal anodes for next generation batteries (Batt4EU Partnership)

HORIZON-CL5-2024-D2-02-02: Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)

HORIZON-CL5-2024-D2-02-03: Size & weight reduction of cell and packaging of batteries system, integrating lightweight and functional materials, innovative thermal management and safe and sustainable by design approach (Batt4EU Partnership)

HORIZON-CL5-2024-D2-02-04: Accelerated multi-physical and virtual testing for battery aging, reliability and safety evaluation (Batt4EU Partnership)

HORIZON-CL5-2023-D2-02-01: Advanced materials and cells development enabling large-scale production of Gen4 solid-state batteries for mobility applications (Batt4EU Partnership)

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Steven Boles

Department of Energy and Process Engineering
Faculty of Engineering

Contact information
steven.boles@ntnu.no
+47 73559832

Relevant links outside academia
Many connections with the battery supply chain in the Nordic countries (Beyonder, Freyr, NoVo Energy, etc.)

Expertise
Expertise in the use of fiber Bragg grating (**FBG**) sensors for monitoring the mechanical, thermal, and chemical evolution of lithium-ion and sodium-ion batteries.

FBG sensors can be either externally affixed the package exterior or physically inserted inside the cell, depending on the situation. These fiber optic sensors are well-suited to monitoring battery evolution because they are low cost, scalable, and do not interfere with the battery operation. In the context of this proposal, the sensors can preemptively identify degradation inside each cell, and then precisely track the thermal and mechanical changes that are necessary for 'self-healing' of the batteries.

Recently co-authored a paper published in Nature Sustainability on the importance of sensing for the future of batteries LINK HERE

Expertise specific to this call:
Operando sensing/monitoring

HORIZON-CL5-2023-D2-02-02: New Approaches to Develop Enhanced Safety Materials for Gen 3 Li-Ion Batteries for Mobility Applications (Batt4EU Partnership)

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Steven Boles

Department of Energy and Process Engineering
Faculty of Engineering

Contact information
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Relevant links outside academia
Many connections with the battery supply chain in the Nordic countries (Beyonder, Freyr, NoVo Energy, etc.)

Expertise
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Recently co-authored a paper published in Nature Sustainability on the importance of sensing for the future of batteries LINK HERE

Expertise specific to this call:
Operando sensing/monitoring

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

wenjun.lu@ntnu.no
+47 41394838

Relevant links outside academia

- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise

- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects

- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

HORIZON-CL5-2023-D2-02-03: Creating a digital passport to track battery materials, optimize battery performance and life, validate recycling, and promote a new business model based on data sharing (Batt4EU Partnership)

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Models for grid infrastructure and battery location problems for spatial flexibility

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information
arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia
Industry and research instructional collaboration

Expertise
Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects
Renewable energy, microgrid and cyber security, lab development

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
Degradation modeling; battery testing and condition monitoring; maintenance optimization.

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Battery life estimation; degradation monitoring and modeling

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

---

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

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Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

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Relevant links outside academia

- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise

- Cold climate science and technology
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- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects

- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

HORIZON-CL5-2024-D2-01-01: Advanced sustainable and safe pre-processing technologies for End-of-Life (EoL) battery recycling (Batt4EU Partnership)

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

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HORIZON-CL5-2024-D2-01-02: Non-Li Sustainable Batteries with European Supply Chains for Stationary Storage (Batt4EU Partnership)

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

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astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

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Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant links outside academia

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

HORIZON-CL5-2024-D2-01-03: Development of technical and business solutions to optimise the circularity, resilience, and sustainability of the European battery value chain (Batt4EU Partnership)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
New methods in quantification and evaluation of resilience and sustainability

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Astrid S. de Wijn

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Faculty of Engineering

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Xinlu Qiu

Department of NTNU Business School
Faculty of Economics and Management

Contact information

xinlu.qiu@ntnu.no
+47 942 56 320

Expertise

Social science, SSH, strategic management, public procurement, sustainability, renewable energy, SME, business model innovation, eco-system, energy-related decision- making

Relevant projects

ECHOES - Energy CHOices supporting the Energy Union and the Set-Plan

XPRESS - Support for Public Procurements to facilitate the collaboration between SMEs and public sector for the development and adoption in renewables in regions

EZEMCON - Ecosystem for Zero Emission Construction Sites

HORIZON-CL5-2024-D2-01-04: Emerging energy technologies for a climate neutral Europe

Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

Contact information
magnus.ronning@ntnu.no
+4791897585

Expertise
My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects
-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
- Expertise on analysing business models for the uptake of emerging technologies. Economic feasibility and financing.

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information

nicola.paltrinieri@ntnu.no
+47 944 99 218

Relevant links outside academia

SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Expertise

Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
Risk associated to emerging technologies (e.g. hydrogen technologies)

Relevant projects

- **SH2IFT** Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage
- **SH2IFT-2** Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2
- **SUSHy** Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches
- **HYDROGENi** Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels
- **HySET** Hydrogen Systems and Enabling Technologies
- **HyInHeat** Hydrogen technologies for decarbonization of industrial heating processes
- **H2Glass** Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

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Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

govert.valkenburg@ntnu.no
+47 94896748

Expertise

Interpretive social-scientific expertise. **Social scientist** with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information

william.throndsen@ntnu.no

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects

IHSMAG

MATCH

INVADE

SENDER

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

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Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

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Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant links outside academia

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Irina Oleinikova

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

irina.oleinikova@ntnu.no
+47 485 08 251

Relevant links outside academia

Cooperation with Statnett

Expertise

Power System Operation and Analysis, Power System Protection and Control TSO-DSO coordination, Flexibility for resilience

Expertise specific to this call:
Energy system modeling & analysis

Relevant projects

Various projects under H2020, ERA-Net, and Research Council of Norway initiatives.

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D2-02-02: Post-Li-ion technologies and relevant manufacturing techniques for mobility applications (Generation 5) (Batt4EU Partnership)

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

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Steven Boles

Department of Energy and Process Engineering
Faculty of Engineering

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steven.boles@ntnu.no
+47 73559832

Relevant links outside academia
Many connections with the battery supply chain in the Nordic countries (Beyonder, Freyr, NoVo Energy, etc.)

Expertise
Expertise in the use of fiber Bragg grating (**FBG**) sensors for monitoring the mechanical, thermal, and chemical evolution of lithium-ion and sodium-ion batteries.

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Recently co-authored a paper published in Nature Sustainability on the importance of sensing for the future of batteries LINK HERE

Expertise specific to this call:
Operando sensing/monitoring

HORIZON-CL5-2024-D2-02-03: Size & weight reduction of cell and packaging of batteries system, integrating lightweight and functional materials, innovative thermal management and safe by design approach (Batt4EU Partnership)

Astrid S. de Wijn

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Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

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+47 41394838

Relevant links outside academia
- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
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Expertise
- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
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- damage mechanics
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- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects
- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

HORIZON-CL5-2024-D2-02-04: Accelerated multi-physical and virtual testing for battery aging, reliability and safety evaluation (Batt4EU Partnership)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
Battery test and performance monitoring; reliability and safety evaluation.

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

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Faculty of Information Technology and Electrical Engineering

Contact information

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Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

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Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

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Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Battery test; reliability engineering; modeling of battery aging and degradation; risk analysis

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

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+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

Steven Boles

Department of Energy and Process Engineering
Faculty of Engineering

Contact information

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+47 73559832

Relevant links outside academia
Many connections with the battery supply chain in the Nordic countries (Beyonder, Freyr, NoVo Energy, etc.)

Expertise
Expertise in the use of fiber Bragg grating (**FBG**) sensors for monitoring the mechanical, thermal, and chemical evolution of lithium-ion and sodium-ion batteries.

FBG sensors can be either externally affixed the package exterior or physically inserted inside the cell, depending on the situation. These fiber optic sensors are well-suited to monitoring battery evolution because they are low cost, scalable, and do not interfere with the battery operation. In the context of this proposal, the sensors can preemptively identify degradation inside each cell, and then precisely track the thermal and mechanical changes that are necessary for 'self-healing' of the batteries.

Recently co-authored a paper published in Nature Sustainability on the importance of sensing for the future of batteries LINK HERE

Expertise specific to this call:
Operando sensing/monitoring

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

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Relevant links outside academia
- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise
- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects
- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

ASSOCIATED RESEARCHERS

Destination 3: Sustainable, secure and competitive energy supply

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 3.

The following pages are sorted into the calls for the destination presented in the draft for cluster 5. To simplify your navigation among available expertise per topic, the list of topics have been made clickable.

DESTINATION 3 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Sustainable, secure and competitive energy supply.

Global leadership in renewable energy.

HORIZON-CL5-2023-D3-02-01: Development of near zero-emission biomass heat and/or CHP including carbon capture.

HORIZON-CL5-2023-D3-02-02: Novel thermal energy storage for CSP.

HORIZON-CL5-2023-D3-02-03: Industrial manufacturing for lower-cost solar thermal components and systems.

HORIZON-CL5-2023-D3-02-04: Innovative components and configurations for heat pumps.

HORIZON-CL5-2023-D3-02-05: Advanced exploration technologies for geothermal resources in a wide range of geological settings.

DESTINATION 3 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

HORIZON-CL5-2023-D3-02-06: Smart use of geothermal electricity and heating and cooling in the energy system..

HORIZON-CL5-2023-D3-02-07: Development of next generation advanced biofuel technologies

HORIZON-CL5-2023-D3-02-08: Development of microalgae and/or direct solar fuel production and purification technologies for advanced aviation and /or shipping fuels.

HORIZON-CL5-2023-D3-02-09: Demonstration of sustainable hydropower refurbishment

HORIZON-CL5-2023-D3-02-10: Development of innovative power take-off and control systems for wave energy devices.

HORIZON-CL5-2023-D3-02-11: Advanced concepts for crystalline Silicon technology.

HORIZON-CL5-2023-D3-02-12: Large Area Perovskite solar cells and modules.

HORIZON-CL5-2023-D3-02-13: Operation, Performance and Maintenance of PV Systems.

HORIZON-CL5-2023-D3-02-14: Digital twin for forecasting of power production to wind energy demand

HORIZON-CL5-2023-D3-02-15: Critical technologies to improve the lifetime, efficient decommissioning and increase the circularity of offshore and onshore wind energy systems.

HORIZON-CL5-2023-D3-02-16: Accelerating the green transition and energy access in Africa

DESTINATION 3 - CALLS

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Call - Sustainable, secure and competitive energy supply.

Energy systems, grids & storage.

HORIZON-CL5-2023-D3-03-01: Increasing the efficiency of innovative static energy conversion devices for electricity and heat/cold generation.

HORIZON-CL5-2023-D3-03-02: Integration of renewable gases, other than hydrogen or methane, and which have not access to gas grids and interfacing with electricity and heat sectors.

HORIZON-CL5-2023-D3-03-03: System approach for grid planning and upgrade in support of a dominant electric mobility (vehicles and vessels) using AI tools.

HORIZON-CL5-2023-D3-03-04: Digital tools for enhancing the uptake of digital services in the energy market

HORIZON-CL5-2023-D3-03-05: Creation of a standardised and open-source peer-to-peer energy sharing platform architecture for the energy sector

HORIZON-CL5-2023-D3-03-06: Components and interfacing for AC & DC side protection system – AC & DC grid: components and systems for grid optimisation.

Call - Sustainable, secure and competitive energy supply.

Global leadership in renewable energy.

HORIZON-CL5-2024-D3-01-01: Alternative equipment and processes for advanced manufacturing of PV technologies.

HORIZON-CL5-2024-D3-01-02: Low-power PV..

HORIZON-CL5-2024-D3-01-03: Demonstration of improved intermediate renewable energy carrier technologies for transport fuels.

HORIZON-CL5-2024-D3-01-04: Improvement of light harvesting and carbon fixation with synthetic biology and/or bio-inspired//biomimetic pathways for renewable direct solar fuels production

DESTINATION 3 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

HORIZON-CL5-2024-D3-01-05: Development of carbon fixation technologies for biogenic flue gases

HORIZON-CL5-2024-D3-01-06: Innovative applications/integration of geothermal heating and cooling in industry.

HORIZON-CL5-2024-D3-01-07: Development of hydropower equipment for improving techno-economic efficiency and equipment resilience in refurbishment situations.

HORIZON-CL5-2024-D3-01-08: Demonstration of sustainable wave energy farms.

HORIZON-CL5-2024-D3-01-09: Africa-EU CO-FUND action.

HORIZON-CL5-2024-D3-01-10: Next generation of renewable energy technologies.

Energy systems, grids & storage.

HORIZON-CL5-2024-D3-01-11: AI Testing and Experimentation Facility (TEF) for the energy sector – bringing technology to the market

HORIZON-CL5-2024-D3-01-12: Energy Management Systems for flexibility services.

HORIZON-CL5-2024-D3-01-13: DC and AC/DC hybrid transmission and distribution systems

HORIZON-CL5-2024-D3-01-14: Condition & Health Monitoring in Power Electronics (PE) - Wide Band Gap PE for the energy sector

HORIZON-CL5-2024-D3-01-15: HVAC, HVDC and High-Power cable systems.

HORIZON-CL5-2024-D3-01-16: Demonstration of innovative pumped storage equipment and tools in combination with innovative storage management systems.

HORIZON-CL5-2024-D3-01-17: Development and integration of advanced software tools in SCADA systems for High, Medium and Low voltage AC/DC hybrid systems.

DESTINATION 3 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Sustainable, secure and competitive energy supply.

Global leadership in renewable energy.

HORIZON-CL5-2024-D3-02-01: Digital tools for CSP and solar thermal plants.

HORIZON-CL5-2024-D3-02-02: Development of next generation synthetic renewable fuel technologies

HORIZON-CL5-2024-D3-02-03: Development of smart concepts of integrated energy driven bio-refineries for co-production of advanced biofuels, bio-chemicals and biomaterials.

HORIZON-CL5-2024-D3-02-04: Critical technologies for the future ocean energy farms.

HORIZON-CL5-2024-D3-02-05: PV-integrated electric mobility applications.

HORIZON-CL5-2024-D3-02-06: Innovative, Community-Integrated PV systems.

HORIZON-CL5-2024-D3-02-07: Resource Efficiency of PV in Production, Use and Disposal

HORIZON-CL5-2024-D3-02-08: Minimisation of environmental, and optimisation of socio-economic impacts in the deployment, operation and decommissioning of offshore wind farms.

HORIZON-CL5-2024-D3-02-09: Demonstrations of innovative floating wind concepts.

HORIZON-CL5-2024-D3-02-10: Market Uptake Measures of renewable energy systems.

Carbon Capture, Utilization and Storage (CCUS)

HORIZON-CL5-2024-D3-02-11: CCU for the production of fuels.

HORIZON-CL5-2024-D3-02-12: DACCS and BECCS for CO2 removal/negative emissions

HORIZON-CL5-2023-D3-02-01: Development of near zero-emission biomass heat and/or CHP including carbon capture

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

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Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

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+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2023-D3-02-02: Novel thermal energy storage for CSP

Astrid S. de Wijn

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Faculty of Engineering

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Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

HORIZON-CL5-2023-D3-02-03: Industrial manufacturing for lower-cost solar thermal components and systems

Astrid S. de Wijn

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Faculty of Engineering

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Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

HORIZON-CL5-2023-D3-02-04: Innovative components and configurations for heat pumps

Andreas Erbe

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Faculty of Natural Science

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Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Anshuman Abhisek Mishra

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Expertise
Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2023-D3-02-05: Advanced exploration technologies for geothermal resources in a wide range of geological settings

Seyed Ali Ghoreishian Amiri

Department of Civil & Environmental Engineering
Faculty of Engineering

Contact information

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Relevant links outside academia
NGI, NORCE, Sintef

Expertise
Numerical modelling of coupled problems in geological porous media

Expertise specific to this call:
Developing computational tools for THM analysis

Relevant projects
PoreLab

SAMCoT

Sustainable Stable Ground

Astrid S. de Wijn

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Faculty of Engineering

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Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Andreas Erbe

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+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

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Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2023-D3-02-06: Smart use of geothermal electricity and heating and cooling in the energy system

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

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Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

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Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia

DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise

- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects

Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:

Decision under uncertainty, energy management, energy management in buildings.

HORIZON-CL5-2023-D3-02-07: Development of next generation advanced biofuel technologies

Astrid S. de Wijn

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Faculty of Engineering

Contact information
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Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

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Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2023-D3-02-08: Development of microalgae and/or direct solar fuel production and purification technologies for advanced aviation and / or shipping fuels

Andreas Erbe

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Faculty of Natural Science

Contact information

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+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

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Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2023-D3-02-09: Demonstration of sustainable hydropower refurbishment

Hossein Farahman

Department of Electrical Power Engineering
Faculty of Information Technology and Electrical Engineering

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Relevant links outside academia

Both industry and public sector

Expertise

Power market analysis and hydropower scheduling

Power system balancing

Local flexibility markets and flexibility operation in smart systems

Expertise specific to this call:
Optimal scheduling of battery storage developed in **INVADE** H2020 project

Relevant projects

- H2020 **INVADE**, WP Leader, NTNU coordinator, Postdoc supervisor (2017-2020) - Integrated electric vehicles and batteries to empower distributed and centralised storage in distribution grids, H2020 project, EU project funded by the European Commission.
- **HONOR**, WP Leader, Postdoc supervisor (2019-now)- Holistic flexibility market integration of cross-sectoral energy sources, funded by ERA-Net Smart Energy Systems with support from the European Union Horizon 2020 research and innovation programme, a collaborative project with Germany, Denmark and Sweden.
- EU FP7 **TWENTIES**- Transmission system operation with a large penetration of wind and other renewable electricity sources in electricity networks using innovative tools and integrated energy solutions, funded by the European Commission.
- EU-IEE **IRPWIND**-Integrated Research Programme on Wind Energy, funded by the European Commission and initiated as a part of the EERA joint programme on Wind Energy.
- EU FP7 **eHighway2050**- Modular Development Plan of the Pan-European Transmission System 2050, funded by the European Commission.

HORIZON-CL5-2023-D3-02-10: Development of innovative power take-off and control systems for wave energy devices

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
New methods in quantification and evaluation of resilience and sustainability

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
Optimal control, energy systems

HORIZON-CL5-2023-D3-02-11: Advanced concepts for crystalline Silicon technology

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2023-D3-02-12: Large Area Perovskite solar cells and modules

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2023-D3-02-13: Operation, Performance and Maintenance of PV Systems

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

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+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

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Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia
Equinor, Sintef

Expertise
Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Performance monitoring and degradation modeling; maintenance optimization

Relevant projects
2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

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Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

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Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
New methods in quantification and evaluation of resilience and sustainability

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise
Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information
dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:
Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:
DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2023-D3-02-14: Digital twin for forecasting of power production to wind energy demand

Erin Bachynski-Polić

Department of Marine Technology
Faculty of Engineering

Contact information
erin.bachynski@ntnu.no

Relevant expertise
Floating offshore wind turbine dynamics, optimization, dynamics of ocean systems

Relevant projects

Norwegian projects:

WINDMOOR (Advanced wave and wind load models for floating wind turbine mooring system design**)**

SFI BLUES (Floating Structures for the Next Generation Ocean Industries**),**

Upscale (Building knowledge on the future generation of floating substructures for very large wind turbines**)**

EU projects:

ITN FLOAWER (FLOAting Wind Energy network**)**

MARINET2.

International projects:
OC4,
OC5,
OC6.

Leonardo Montecchi

Department of Computer Science
Faculty of Engineering

Contact information
leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia
ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise
Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets.

Relevant projects
ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Digital twin quantification; time series/machine learning based forecasting methods

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

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Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

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Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
New methods in quantification and evaluation of resilience and sustainability

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Richard Hann

Department of Engineering Cybernetics
Faculty of Information Technology and Electrical Engineering

Contact information

richard.hann@ntnu.no
+4748020891

Relevant links outside academia

UBIQ Aerospace
VTT Finland
DLR Germany

Expertise

- Atmospheric icing
- UAV, UAM, AAM
- Computational Fluid Mechanics (CFD)
- Icing CFD
- Pathplanning for UAVs
- Ice detection

Relevant projects

Several RCN projects, IPN, ITKPLUSS

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2023-D3-02-15: Critical technologies to improve the lifetime, efficient decommissioning and increase the circularity of offshore and onshore wind energy systems

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Remaining life estimation; erosion and corrosion monitoring and modeling

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

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Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.

- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager

- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI

- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan

- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia
DNV

Expertise
Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
New methods in quantification and evaluation of resilience and sustainability

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

wenjun.lu@ntnu.no
+47 41394838

Relevant links outside academia
- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise
- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects
- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2023-D3-02-16: Accelerating the green transition and energy access in Africa

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

Expertise
Interpretive social-scientific expertise. **Social scientist** with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

HORIZON-CL5-2023-D3-03-01: Increasing the efficiency of innovative static energy conversion devices for electricity and heat/cold generation

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:

- Power electronic converters design, WBG power semiconductors

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

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Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

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Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2023-D3-03-02: Integration of renewable gases other than hydrogen or methane, and which have not access to gas grids and interfacing with electricity and heat sectors

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
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Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information
nicola.paltrinieri@ntnu.no
+47 944 99 218

Expertise
Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
- Chemical process safety

Relevant links outside academia
SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Relevant projects
- **SH2IFT** Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage
- **SH2IFT-2** Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2
- **SUSHy** Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches
- **HYDROGENi** Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels
- **HySET** Hydrogen Systems and Enabling Technologies
- **HyInHeat** Hydrogen technologies for decarbonization of industrial heating processes
- **H2Glass** Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple gas modelling experience, and cross-sector/carrier integration

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

HORIZON-CL5-2023-D3-03-03: System approach for grid planning and upgrade in support of a dominant electric mobility (vehicles and vessels) using AI tools

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:

- Power electronic converters design for charging infrastructure, modularised and reconfigurable converters, WBG power semiconductors

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Developed an AI clustering based tool to take into account spatial flexiblity of EVs in short term grid planning operations

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
AI tools, multi-agent systems, decision under uncertainty, EV charging

HORIZON-CL5-2023-D3-03-04: Digital tools for enhancing the uptake of digital services in the energy market

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information
mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia
Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise
Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects
- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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Rita Bouman

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
rita.tatiana.oliveira@gmail.com
+4773596768

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Energy justice, Socio-ethical analysis and assessment,

Relevant projects
FME North Wind,
NTRANS- Norwegian Centre for Energy Transition Strategies,
EU Project PATTERN - Providing operational economic appraisal methods and practices for decision-making on climate and environmental polices,
Hydrogen Pathways 2050

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple digital twin models to represent: day-ahead markets, intraday, congestion management, reserves dimensioning and others.

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
AI tools, decision under uncertainty, power markets.

HORIZON-CL5-2023-D3-03-05: Creation of a standardised and open-source peer-to-peer energy sharing platform architecture for the energy sector

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information

william.throndsen@ntnu.no

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects

IHSMAG

MATCH

INVADE

SENDER

Rita Bouman

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

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+4773596768

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Energy justice, Socio-ethical analysis and assessment,

Relevant projects

FME North Wind,
NTRANS- Norwegian Centre for Energy Transition Strategies,
EU Project PATTERN - Providing operational economic appraisal methods and practices for decision-making on climate and environmental polices,
Hydrogen Pathways 2050

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple projects funded in the topic. Developed business models, market places, demonstrators and pilots, and many open-source models already developed and published.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
Energy communities, local power markets, energy storage, PV energy, multi-agent systems, decision under uncertainty.

HORIZON-CL5-2023-D3-03-06: Components and interfacing for AC & DC side protection system – AC & DC grid: components and systems for grid optimisation

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information
dimosthenis.peftitsis@ntnu.no

Relevant links outside academia
CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise
Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:
- Multiport power electronic converters design

Relevant projects
1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Modelling power grids and strong experience on TSO-DSO coordination

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

HORIZON-CL5-2024-D3-01-01: Alternative equipment and processes for advanced manufacturing of PV technologies

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

HORIZON-CL5-2024-D3-01-02: Low-power PV

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information
mohammadreza.aghaei@ntnu.no
+47 40635872

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

HORIZON-CL5-2024-D3-01-03: Demonstration of improved intermediate renewable energy carrier technologies for transport fuels

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

Federico Ustolin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

federico.ustolin@ntnu.no
41328568

Relevant links outside academia

Air Liquide, Shell, Kawasaki Heavy Industries, Airbus, Daimler, Gexcon, Sandia National Laboratories. Working groups: CEN - CENELEC - Sector Forum Energy Management – Working Group Hydrogen, International Energy Agency Hydrogen TCP Task 43

Expertise

Process safety; consequence analysis; numerical modelling including computational fluid dynamics (CFD); multiphase flow simulations; risk analysis; hydrogen safety; accident investigation; modelling of potential accident scenarios; definition of effective safety measures; cryogenic technologies.

Relevant projects

1. **SH2IFT** - Safe Hydrogen Fuel Handling and Use for Efficient Implementation

2. **H2CoopStorage** - Responding to the challenges posed by the deployment of renewable energy production means

3. **SH2IFT-2** - Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2

4. **SUSHy** - Sustainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches

5. **HYDROGENi** (FME) - Norwegian research and innovation center for hydrogen and ammonia

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Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

Contact information

magnus.ronning@ntnu.no
+4791897585

Expertise

My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects

-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

HORIZON-CL5-2024-D3-01-04: Improvement of light harvesting and carbon fixation with synthetic biology and/or bio-inspired//biomimetic pathways for renewable direct solar fuels production

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

Contact information
magnus.ronning@ntnu.no
+4791897585

Expertise
My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects
-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

HORIZON-CL5-2024-D3-01-05: Development of carbon fixation technologies for biogenic flue gases

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

HORIZON-CL5-2024-D3-01-06: Innovative applications/integration of geothermal heating and cooling in industry

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

HORIZON-CL5-2024-D3-01-07: Development of hydropower equipment for improving techno-economic efficiency and equipment resilience in refurbishment situations

Sveinung Sægrov

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

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+47 93096277

Relevant links outside academia

Norsk Vann
Norwegian Church Aid

Expertise

Water engineering

Project management

Relevant projects

EU projects

- BINGO
- TRUST
- TECHNEAU
- CITYNET
- CARE-S
- CARE-W

Hossein Farahman

Department of Electrical Power Engineering
Faculty of Information Technology and Electrical Engineering

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Relevant links outside academia

Both industry and public sector

Expertise

Power market analysis and hydropower scheduling

Power system balancing

Local flexibility markets and flexibility operation in smart systems

Expertise specific to this call:
Optimal scheduling of battery storage developed in **INVADE** H2020 project

Relevant projects

- H2020 **INVADE**, WP Leader, NTNU coordinator, Postdoc supervisor (2017-2020) - Integrated electric vehicles and batteries to empower distributed and centralised storage in distribution grids, H2020 project, EU project funded by the European Commission.
- **HONOR**, WP Leader, Postdoc supervisor (2019-now)- Holistic flexibility market integration of cross-sectoral energy sources, funded by ERA-Net Smart Energy Systems with support from the European Union Horizon 2020 research and innovation programme, a collaborative project with Germany, Denmark and Sweden.
- EU FP7 **TWENTIES**- Transmission system operation with a large penetration of wind and other renewable electricity sources in electricity networks using innovative tools and integrated energy solutions, funded by the European Commission.
- EU-IEE **IRPWIND**-Integrated Research Programme on Wind Energy, funded by the European Commission and initiated as a part of the EERA joint programme on Wind Energy.
- EU FP7 **eHighway2050**- Modular Development Plan of the Pan-European Transmission System 2050, funded by the European Commission.

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
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+47 41394838

Relevant links outside academia
- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise
- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects
- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

HORIZON-CL5-2024-D3-01-08: Demonstration of sustainable wave energy farms

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

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Relevant projects:
Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:
DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D3-01-09: Africa-EU CO-FUND action

Sveinung Sægrov

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Faculty of Engineering

Contact information

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+47 93096277

Relevant links outside academia

Norsk Vann
Norwegian Church Aid

Expertise

Water engineering

Project management

Relevant projects

EU projects

- BINGO
- TRUST
- TECHNEAU
- CITYNET
- CARE-S
- CARE-W

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

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+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

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+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

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+47 94896748

Expertise

Interpretive social-scientific expertise. **Social scientist** with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

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+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

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Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

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+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D3-01-10: Next generation of renewable energy technologies

Xu Lu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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+4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and ex-situ hydrogen environment, including slow strain rate testing, fatigue testing, microcantilever bending, micropillar compression, nanoindentation testing.
- Advanced technique for studying hydrogen uptake, diffusion and trapping behavior using thermal desorption spectroscopy, permeation testing.
- Advanced materials characterization technique including SEM, EBSD, EDS, ECCI, FIB, AFM, TEM, APT.

Relevant links outside academia

Industrial partners: Equinor, Aker Solution, Voestalpine AG, Böhler Edelstahl GmbH & Co KG, Total Energy, FORCE Technology, IceTec.

University: RWTH-Aachen University, Ghent University, La Rochelle University, Curtin University, University of Burgos.

Research centers: SINTEF, SWERIM, Max-Plank-Institute of iron research.

Relevant projects

Multiscale Hydrogen Embrittlement Assessment for Subsea Conditions (M-HEAT)

Safe Pipelines for Hydrogen Transport (HyLINE)

High strength hydrogen resistant alloys (HyResMat) project within the COMET-K2-Center MPPE

Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

Contact information

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+4791897585

Expertise

My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects

-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

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+47 94896748

Expertise

Interpretive social-scientific expertise. **Social scientist** with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information

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+47 944 99 218

Relevant links outside academia

SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Expertise

Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
Management of risk associated to emerging technologies

Relevant projects

- **SH2IFT** Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage
- **SH2IFT-2** Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2
- **SUSHy** Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches
- **HYDROGENi** Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels
- **HySET** Hydrogen Systems and Enabling Technologies
- **HyInHeat** Hydrogen technologies for decarbonization of industrial heating processes
- **H2Glass** Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Expertise on analysing business models for the uptake of emerging technologies. Economic feasibility and financing.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

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+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
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+47 486 61 996

Expertise
Building Energy simulations, Building CFD-CHT,
Building Carbon Emissions, BIM, BIM-BEM
Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2024-D3-01-11: AI Testing and Experimentation Facility (TEF) for the energy sector – bringing technology to the market

Xu Lu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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+4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and ex-situ hydrogen environment, including slow strain rate testing, fatigue testing, microcantilever bending, micropillar compression, nanoindentation testing.
- Advanced technique for studying hydrogen uptake, diffusion and trapping behavior using thermal desorption spectroscopy, permeation testing.
- Advanced materials characterization technique including SEM, EBSD, EDS, ECCI, FIB, AFM, TEM, APT.

Relevant links outside academia

Industrial partners: Equinor, Aker Solution, Voestalpine AG, Böhler Edelstahl GmbH & Co KG, Total Energy, FORCE Technology, IceTec.

University: RWTH-Aachen University, Ghent University, La Rochelle University, Curtin University, University of Burgos.

Research centers: SINTEF, SWERIM, Max-Plank-Institute of iron research.

Relevant projects

Multiscale Hydrogen Embrittlement Assessment for Subsea Conditions (M-HEAT)

Safe Pipelines for Hydrogen Transport (HyLINE)

High strength hydrogen resistant alloys (HyResMat) project within the COMET-K2-Center MPPE

HORIZON-CL5-2024-D3-01-12: Energy Management Systems for flexibility services

Irina Oleinikova

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

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Relevant links outside academia

Cooperation with Statnett

Expertise

Power System Operation and Analysis, Power System Protection and Control TSO-DSO coordination, Flexibility for resilience

Expertise specific to this call:
Flexibility studies, modeling

Relevant projects

Various projects under H2020, ERA-Net, and Research Council of Norway initiatives.

Basanta Raj Pokhrel

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

basanta.r.pokhrel@ntnu.no

Relevant links outside academia

Links with Couple of DSOs and TSO in Denmark as well as couple of Industries in Norway and Denmark.

Good connection with Asian Network operators and public sector as well.

Relevant expertise

Research Experience within Smart grid operation, wide area monitoring, application of PMU/RTU/smart meter data.

Project Management / Activity leader

Relevant projects

CINELDI

SysOpt

SPANDEX : Synchrophasor/PMU Application Integration Data Exchange

EarlyWarn : Big data analytics using PMU and fault recorder data for early warning and situational awareness

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Mohammadreza Aghaei

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Faculty of Engineering

Contact information

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Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

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+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Demonstrators ready to be considered for this call. Multiple projects funded on the topic

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

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Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
Decision under uncertainty, flexible demand, power markets

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information

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Expertise
10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects
IHSMAG

MATCH

INVADE

SENDER

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

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Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D3-01-13: DC and AC/DC hybrid transmission and distribution systems

Frank Mauseth

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

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Relevant links outside academia

Nexans (cable manufacturer), SINTEF Energy Research, Statnett, Elvia BKK, Tensio, GE

Expertise

High voltage insulation systems (AC and DC) Modelling and experimental testing Measurement techniques for current and voltage measurements Space charge measurements

Expertise specific to this call:
Aging mechanisms, design criteria, condition assessment

Relevant projects

WetCab and FuturReCare - wet design AC cables for offshore wind farms (Nexans)

LowEmission Center - SP3 on cables

SmartACT - condition assessment of 420 kV XLPE terminations (Statnett)

SubConn - HV Subsea connectors (Incl. a PhD on PD under DC wtih superimposed harmonics)

HVAC and DC Subsea cables for Offshore Wind Farms and Transmission Grids (incl. a PhD on wet insulation under HVDC and space charges

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Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

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+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Modelling power grids and strong experience on TSO-DSO coordination

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:

- Power electronic converters design, WBG power semiconductors

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Irina Oleinikova

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

irina.oleinikova@ntnu.no
+47 485 08 251

Relevant links outside academia

Cooperation with Statnett

Expertise

Power System Operation and Analysis, Power System Protection and Control TSO-DSO coordination, Flexibility for resilience

Expertise specific to this call:
Flexibility studies, modeling

Relevant projects

Various projects under H2020, ERA-Net, and Research Council of Norway initiatives.

Basanta Raj Pokhrel

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

basanta.r.pokhrel@ntnu.no

Relevant links outside academia

Links with Couple of DSOs and TSO in Denmark as well as couple of Industries in Norway and Denmark.

Good connection with Asian Network operators and public sector as well.

Relevant expertise

Research Experience within Smart grid operation, wide area monitoring, application of PMU/RTU/smart meter data.

Project Management / Activity leader

Relevant projects

CINELDI

SysOpt

SPANDEX : Synchrophasor/PMU Application Integration Data Exchange

EarlyWarn : Big data analytics using PMU and fault recorder data for early warning and situational awareness

HORIZON-CL5-2024-D3-01-14: Condition & Health Monitoring in Power Electronics (PE) - Wide Band Gap PE for the energy sector

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:

- Reliability of power electronics, lifetime modelling of power semiconductors

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
General methods in condition monitoring and health management

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

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Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (**NESS**), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (**NINJAS4CARE**), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (**NOR-VIS**), a **NORPART** project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (**SUSHy**), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- **AutoPRO** - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

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Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance
Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
New methods in quantification and evaluation of resilience and sustainability

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

HORIZON-CL5-2024-D3-01-15: HVAC, HVDC and High-Power cable systems

Frank Mauseth

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

frank.mauseth@ntnu.no
+4773594234

Relevant links outside academia

Nexans (cable manufacturer), SINTEF Energy Research, Statnett, Elvia BKK, Tensio, GE

Expertise

High voltage insulation systems (AC and DC) Modelling and experimental testing Measurement techniques for current and voltage measurements Space charge measurements

Expertise specific to this call:
Aging mechanisms, design criteria, condition assessment

Relevant projects

WetCab and FuturReCare - wet design AC cables for offshore wind farms (Nexans)

LowEmission Center - SP3 on cables

SmartACT - condition assessment of 420 kV XLPE terminations (Statnett)

SubConn - HV Subsea connectors (Incl. a PhD on PD under DC wtih superimposed harmonics)

HVAC and DC Subsea cables for Offshore Wind Farms and Transmission Grids (incl. a PhD on wet insulation under HVDC and space charges

HORIZON-CL5-2024-D3-01-16: Demonstration of innovative pumped storage equipment and tools in combination with innovative storage management systems

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Experience on modelling hybrid storage systems

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

HORIZON-CL5-2024-D3-01-17: Development and integration of advanced software tools in SCADA systems for High, Medium and Low voltage AC/DC hybrid systems

Irina Oleinikova

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

irina.oleinikova@ntnu.no
+47 485 08 251

Relevant links outside academia

Cooperation with Statnett

Expertise

Power System Operation and Analysis, Power System Protection and Control TSO-DSO coordination, Flexibility for resilience

Expertise specific to this call:
Hybrid system modelling & analysis

Relevant projects

Various projects under H2020, ERA-Net, and Research Council of Norway initiatives.

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:
Power electronic converters design, health monitoring of power converters

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

HORIZON-CL5-2024-D3-02-01: Digital tools for CSP and solar thermal plants

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia

DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise

- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects

Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:

AI tools, decision under uncertainty

HORIZON-CL5-2024-D3-02-02: Development of next generation synthetic renewable fuel technologies

Xu Lu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xu.lu@ntnu.no
+4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and ex-situ hydrogen environment, including slow strain rate testing, fatigue testing, microcantilever bending, micropillar compression, nanoindentation testing.
- Advanced technique for studying hydrogen uptake, diffusion and trapping behavior using thermal desorption spectroscopy, permeation testing.
- Advanced materials characterization technique including SEM, EBSD, EDS, ECCI, FIB, AFM, TEM, APT.

Relevant links outside academia

Industrial partners: Equinor, Aker Solution, Voestalpine AG, Böhler Edelstahl GmbH & Co KG, Total Energy, FORCE Technology, IceTec.

University: RWTH-Aachen University, Ghent University, La Rochelle University, Curtin University, University of Burgos.

Research centers: SINTEF, SWERIM, Max-Plank-Institute of iron research.

Relevant projects

Multiscale Hydrogen Embrittlement Assessment for Subsea Conditions (M-HEAT)

Safe Pipelines for Hydrogen Transport (HyLINE)

High strength hydrogen resistant alloys (HyResMat) project within the COMET-K2-Center MPPE

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Expertise on analysing business models for the uptake of emerging technologies. Economic feasibility and financing.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

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+4791897585

Expertise
My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects
-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

HORIZON-CL5-2024-D3-02-04: Critical technologies for the future ocean energy farms

Erin Bachynski-Polić

Department of Marine Technology
Faculty of Engineering

Contact information

erin.bachynski@ntnu.no

Relevant expertise

Floating offshore wind turbine dynamics, optimization, dynamics of ocean systems

Relevant projects

Norwegian projects:

WINDMOOR (Advanced wave and wind load models for floating wind turbine mooring system design**)**

SFI BLUES (Floating Structures for the Next Generation Ocean Industries**),**

Upscale (Building knowledge on the future generation of floating substructures for very large wind turbines**)**

EU projects:

ITN FLOAWER (FLOAting Wind Energy network**)**

MARINET2.

International projects:
OC4,
OC5,
OC6.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

wenjun.lu@ntnu.no
+47 41394838

Relevant links outside academia

- Equinor
- Multiconsult
- Norconsult
- Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise

- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects

- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D3-02-05: PV-integrated electric mobility applications

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:

- Power electronic converters design, WBG power semiconductors

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.

2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.

3.Optimized Battery Energy Storage Systems (ORBES) project.

4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

astrid.dewijn@ntnu.no

Expertise

Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information

william.throndsen@ntnu.no

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects

IHSMAG

MATCH

INVADE

SENDER

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

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Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Models on the integration of communities and role of EV in flexiblity planning for distribution grids

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information
sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
EV charging, AI tools, multi-agent systems, decision under uncertainty, EV charging.

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information
dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:
Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:
DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

Francesco Goia

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
francesco.goia@ntnu.no
+4745027437

Relevant expertise
Building science, building envelope technology, building monitoring and control

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Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information
william.throndsen@ntnu.no

Expertise
10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects
IHSMAG

MATCH

INVADE

SENDER

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia
Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise
Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects
- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

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Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

govert.valkenburg@ntnu.no
+47 94896748

Expertise

Interpretive social-scientific expertise. **Social scientist** with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

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Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple projects funded in the topic. Developed business models, proposed market places, demonstrators and pilots, and many open-source models already developed and published.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia

DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise

- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects

Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:

Energy communities, multi-agent systems, decision under uncertainty, PV energy

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2024-D3-02-07: Resource Efficiency of PV in Production, Use and Disposal

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
astrid.dewijn@ntnu.no

Expertise
Theory and modelling - tribology, surface science, transport properties, nonlinear dynamics, condensed matter, stochastic dynamics.

We employ computational (molecular dynamics and monte carlo) and analytical methods.

We collaborate with experimental as well as theoretical researchers from a wide variety of fields, ranging from chemical engineering to mathematical physics. The materials we study the most at the moment are electrolytes and polymers.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information
mohammadreza.aghaei@ntnu.no
+47 40635872

Expertise
Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant links outside academia
Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Relevant projects
- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno-economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

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Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2024-D3-02-08: Minimisation of environmental, and optimisation of socio-economic impacts in the deployment, operation and decommissioning of offshore wind farms

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2024-D3-02-09: Demonstrations of innovative floating wind concepts

Erin Bachynski-Polić

Department of Marine Technology
Faculty of Engineering

Contact information
erin.bachynski@ntnu.no

Relevant expertise
Floating offshore wind turbine dynamics, optimization, dynamics of ocean systems

Relevant projects

Norwegian projects:

WINDMOOR (Advanced wave and wind load models for floating wind turbine mooring system design**)**

SFI BLUES (Floating Structures for the Next Generation Ocean Industries**),**

Upscale (Building knowledge on the future generation of floating substructures for very large wind turbines**)**

EU projects:

ITN FLOAWER (FLOAting Wind Energy network**)**

MARINET2.

International projects:
OC4,
OC5,
OC6.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

HORIZON-CL5-2024-D3-02-10: Market Uptake Measures of renewable energy systems

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Market design expertise on increasing flexiblity in the power system to prepare a renewable uptake and the role of cross-sector integration

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

HORIZON-CL5-2024-D3-02-11: CCU for the production of fuels

Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

Contact information

magnus.ronning@ntnu.no
+4791897585

Expertise

My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects

-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

HORIZON-CL5-2024-D3-02-12: DACCS and BECCS for CO2 removal/negative emissions

Julius Wesche

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

julius.wesche@ntnu.no
+49 17652264119

Relevant links outside academia

Former member of the steering board of: Sustainability Transitions Research Network.

Host of the NTNU Energy Transition Podcast and the enPower Energiewende Podcast.

Expertise

Wide knowledge in innovation studies and sustainability transitions studies with substantial research and project experience on the following topics: Direct Air Capture, CCUS, onshore wind, heat technologies.

Expertise specific to this call:
Relevant SSH expertise to enhance the societal impact of the related research activities. Substantial experience concerning innovation studies and social acceptance studies. Qualitative and quantitative research methods.

Relevant projects

WISE Wind

Strategy CCUS

Tansnik

ASSOCIATED RESEARCHERS

Destination 4:
Efficient, sustainable and inclusive energy use

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 4.

The following pages are sorted into the calls for the destination presented in the draft for cluster 5. To simplify your navigation among available expertise per topic, the list of topics have been made clickable.

DESTINATION 4 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Efficient, sustainable and inclusive energy use.

Highly energy-efficient and climate neutral European building stock.

HORIZON-CL5-2023-D4-02-01: Innovative uses of lifecycle data for the management of buildings and buildings portfolios (Built4People Partnership)

HORIZON-CL5-2023-D4-02-02: Solutions for the identification of vulnerable buildings and people-centric built environment, and for improving their resilience in disruptive events and altered conditions in a changing climate (Built4People Partnership)

HORIZON-CL5-2023-D4-02-03: Demonstrate built-environment decarbonisation pathways through bottom-up technological, social and policy innovation for adaptive integrated sustainable renovation solutions (Built4People Partnership)

HORIZON-CL5-2023-D4-02-04: Fast-tracking and promoting built environment construction and renovation innovation with local value chains (Built4People Partnership)

HORIZON-CL5-2023-D4-02-05: Supporting the creation of an accessible and inclusive built environment (Built4People Partnership)

DESTINATION 4 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Efficient, sustainable and inclusive energy use.

Highly energy-efficient and climate neutral European building stock.

HORIZON-CL5-2024-D4-01-01: Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings.

HORIZON-CL5-2024-D4-01-02: Smart grid-ready buildings.

Industry.

HORIZON-CL5-2024-D4-01-03: Alternative heating systems for efficient, flexible and electrified heat generation in industry.

Call - Efficient, sustainable and inclusive energy use.

Highly energy-efficient and climate neutral European building stock.

HORIZON-CL5-2024-D4-02-01: Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)

HORIZON-CL5-2024-D4-02-02: Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment (Built4People Partnership)

HORIZON-CL5-2024-D4-02-03: BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)

HORIZON-CL5-2024-D4-02-04: Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)

HORIZON-CL5-2024-D4-02-05: Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts (Built4People Partnership)

HORIZON-CL5-2023-D4-02-01: Innovative uses of lifecycle data for the management of buildings and buildings portfolios (Built4People Partnership)

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple projects funded in the topic. Developed business models, market places, demonstrators and pilots, and many open-source models already developed and published.

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise
Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2023-D4-02-02: Solutions for the identification of vulnerable buildings and people-centric built environment, and for improving their resilience in disruptive events and altered conditions in a changing climate (Built4People Partnership)

Casper Boks

Department of Design
Faculty of Architecture and Design

Contact information

casper.boks@ntnu.no

Expertise

Design for sustainable behavior and practices

Consumer acceptance and adoption of circular paradigms

Relevant projects

H2020 MSCA-ITN The Circular European Economy Innovative Training Network (CIRC€UIT)

"Narrating Sustainability" (funded by NTNU Sustainability)

Developing a Holistic Ecosystem for Sustainable Repurposing and/or Recycling of Lithium-ion Batteries

(LIBs) in Norway and EU" (HolE-LIB) (funded by NTNU Sustainability"

ERA-NET LAC II - Design of Insect- and Insect-based Food Products

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Dimitrios Tzioutzios

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

dimitrios.tzioutzios@ntnu.no

Relevant link outside academia

Local government organisations in Japan, Colombia and Greece

First responder associations in Japan

Companies in the petrochemical and energy sector in Japan, Colombia and Norway

Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise

- Disaster risk management
- Natech (Natural hazard-triggered Technological) accidents
- Risk communication
- Hydrogen safety
- Participatory decision-making
- Disaster preparedness
- Community risk perception
- Technology acceptance
- Serious gaming
- Spatial and land-use planning

Relevant projects

SUSHy Project:
SUStainability and cost-reduction of Hydrogen stations through risk-based,multidisciplinary approaches (European-Japanese consortium) [ongoing]

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

Contact information

leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Andreas Erbe

Department of Materials Science and Engineering

Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

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Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Mrudhula Koshy

Department of Architecture and Planning
Faculty of Architecture and Design

Contact information

mrudhula.koshy@ntnu.no

Relevant links outside academia

ICLEI Europe, EGGS design (Nordic), Global Resilience Partnership, Drift for Transition (Rotterdam, NL), Manyone (Copenhagen), PosadMaxwan (NL), All-India Institute of Local Self-government (India)

Expertise

Urban Planning, Urban Design, Planning under uncertainty, environmental crises, contingency planning, nature-based solutions, multi-stakeholder processes and management, participatory methods, decision-making under uncertainty, resilience, climate change adaptation, risk management, intersectionality, gender, diversity, transdisciplinarity, multi-scalar spatial strategies

Relevant projects

- Erasmus+ global mobility
- ENHANCE cooperation
- UTFORSK NISA

Ivan Depina

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

ivan.depina@ntnu.no
+47 403 89 387

Relevant links outside academia

Public sector - national road and railway authorities, meteorological institute, early warning authorities for landslides and floods

Industry - research organizations and institutes

Expertise

Geotechnical engineering, geological hazards, risk analysis, resilience analysis, critical infrastructure, decision-making, quantifying effects of climate change, water-induced landslides, data analysis, machine learning, digitalization, IoT monitoring, warning systems.

Relevant projects

Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment

KlimaDigital - IoT solutions for monitoring water-induced landslides

CRES - climate-resilient infrastructure

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2023-D4-02-03: Demonstrate built-environment decarbonisation pathways through bottom-up technological, social and policy innovation for adaptive integrated sustainable renovation solutions (Built4People Partnership)

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple projects funded in the topic. Developed business models, market places, demonstrators and pilots, and many open-source models already developed and published.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information

william.throndsen@ntnu.no

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects

IHSMAG

MATCH

INVADE

SENDER

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2023-D4-02-04: Fast-tracking and promoting built environment construction and renovation innovation with local value chains (Built4People Partnership)

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise
Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
inger.andresen@ntnu.no
+4740649405

Relevant links outside academia
industry, public sector, NGOs

Expertise
Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects
H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2023-D4-02-05: Supporting the creation of an accessible and inclusive built environment (Built4People Partnership)

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

Expertise

Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information
william.throndsen@ntnu.no

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects

IHSMAG

MATCH

INVADE

SENDER

Mrudhula Koshy

Department of Architecture and Planning
Faculty of Architecture and Design

Contact information

mrudhula.koshy@ntnu.no

Relevant links outside academia

ICLEI Europe, EGGS design (Nordic), Global Resilience Partnership, Drift for Transition (Rotterdam, NL), Manyone (Copenhagen), PosadMaxwan (NL), All-India Institute of Local Self-government (India)

Expertise

Urban Planning, Urban Design, Planning under uncertainty, environmental crises, contingency planning, nature-based solutions, multi-stakeholder processes and management, participatory methods, decision-making under uncertainty, resilience, climate change adaptation, risk management, intersectionality, gender, diversity, transdisciplinarity, multi-scalar spatial strategies

Relevant projects

- Erasmus+ global mobility
- ENHANCE cooperation
- UTFORSK NISA

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D4-01-01: Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
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openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Gearóid Lydon

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

gearoid.lydon@ntnu.no
+4796924439

Relevant links outside academia

HVAC system manufacturers and the construction industry.

Relevant expertise

Associate Professor for the integration of renewable energy systems in the built environment. Focusing on the interaction between thermal energy systems, structures, and architecture. Multidisciplinary experience in relation to prototype development, large-scale demonstrators, and spin-off companies.

Specific expertise:
Building physics, building performance simulation, numerical and experimental thermal analysis, heating and cooling systems, HVAC systems, digital fabrication, design of energy-positive buildings, and the implementation of demonstrator projects.

Relevant projects

NCCR Digital Fabrication, Swiss National Science Foundation (SNSF):
Performance-Integrated 3D Printing
Fostering Implementation: Sustainability, Performance and Applicability
NEST HiLo, coordinator for building energy systems and research planning.

Francesco Goia

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

francesco.goia@ntnu.no
+4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control

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Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

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+4740649405

Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D4-01-02: Smart grid-ready buildings

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple projects funded in the topic. Developed business models, market places, demonstrators and pilots, and many open-source models already developed and published.

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information
william.throndsen@ntnu.no

Expertise
10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects
IHSMAG

MATCH

INVADE

SENDER

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

mohammadreza.aghaei@ntnu.no
+47 40635872

Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Sveinung Sægrov

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

sveinung.sagrov@ntnu.no
+47 93096277

Relevant links outside academia

Norsk Vann
Norwegian Church Aid

Expertise

Water engineering

Project management

Relevant projects

EU projects

- **BINGO**
- **TRUST**
- **TECHNEAU**
- **CITYNET CARE-S**
- **CARE-W**

Francesco Goia

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

francesco.goia@ntnu.no
+4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control

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Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
Smart building management, energy communities, smart grids.

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia
industry, public sector, NGOs

Expertise
Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects
H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D4-01-03: Alternative heating systems for efficient, flexible and electrified heat generation in industry

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information
pedro@ntnu.no
+47 951 56 944

Relevant links outside academia
Multiple contacts in the energy industry and software companies

Expertise
Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Relevant projects
Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise
Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2024-D4-02-01: Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)

Andreas Erbe

Department of Materials Science and Engineering Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise
Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

Anshuman Abhisek Mishra

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+47 486 61 996

Expertise
Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

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Faculty of Architecture and Design

Contact information
inger.andresen@ntnu.no
+4740649405

Relevant links outside academia
industry, public sector, NGOs

Expertise
Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects
H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

HORIZON-CL5-2024-D4-02-02: Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment (Built4People Partnership)

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

Contact information

leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
Cyber-physical system-based inspection and maintenance strategies.

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research- based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Anshuman Abhisek Mishra

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Faculty of Architecture and Design

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+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+47 406 49 405

Relevant links outside academia

Industry and public sector

Relevant expertise

Energy efficiency in buildings, zero emission buildings and neighbourhoods

Relevant projects

ARV - Climate Positive Circular Communities: Coordinator

syn.ikia - Sustainable Plus Energy Neighbourhoods: WP leader

HORIZON-CL5-2024-D4-02-03: BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)

Leonardo Montecchi

Department of Computer Science
Faculty of Engineering

Contact information

leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Francesco Goia

Department of Architecture and Technology Faculty of Architecture and Design

Contact information

francesco.goia@ntnu.no
+4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control

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Faculty of Architecture and Design

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Relevant links outside academia

industry, public sector, NGOs

Expertise

Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects

H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

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+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2024-D4-02-04: Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)

Casper Boks

Department of Design
Faculty of Architecture and Design

Contact information
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Expertise
Design for sustainable behavior and practices

Consumer acceptance and adoption of circular paradigms

Relevant projects
H2020 MSCA-ITN The Circular European Economy Innovative Training Network (CIRC€UIT)

"Narrating Sustainability" (funded by NTNU Sustainability)

Developing a Holistic Ecosystem for Sustainable Repurposing and/or Recycling of Lithium-ion Batteries

(LIBs) in Norway and EU" (HolE-LIB) (funded by NTNU Sustainability"

ERA-NET LAC II - Design of Insect- and Insect-based Food Products

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Xinlu Qiu

Department of NTNU Business School
Faculty of Economics and Management

Contact information
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+47 942 56 320

Expertise
Social science, SSH, strategic management, public procurement, sustainability, renewable energy, SME, business model innovation, eco-system, energy-related decision- making

Relevant projects
ECHOES - Energy CHOices supporting the Energy Union and the Set-Plan

XPRESS - Support for Public Procurements to facilitate the collaboration between SMEs and public sector for the development and adoption in renewables in regions

EZEMCON - Ecosystem for Zero Emission Construction Sites

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
inger.andresen@ntnu.no
+4740649405

Relevant links outside academia
industry, public sector, NGOs

Expertise
Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects
H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

Sveinung Sægrov

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

sveinung.sagrov@ntnu.no
+47 93096277

Relevant links outside academia

Norsk Vann
Norwegian Church Aid

Expertise

Water engineering

Project management

Relevant projects

EU projects

- BINGO
- TRUST
- TECHNEAU
- CITYNET CARE-S
- CARE-W

Francesco Goia

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

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+4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control

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Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

HORIZON-CL5-2024-D4-02-05: Digital solutions to foster participative design, planning and management of buildings, neighborhoods and urban districts (Built4People Partnership)

Eleftherios Papachristou

Department of Design
Faculty of Architecture and Design

Contact information

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+47 47707238

Expertise

- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and AI
- Interface Evaluation.

Relevant projects

rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)

Dimitrios Tzioutzios

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

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Relevant link outside academia

Local government organisations in Japan, Colombia and Greece

First responder associations in Japan

Companies in the petrochemical and energy sector in Japan, Colombia and Norway

Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise

- Disaster risk management
- Natech (Natural hazard-triggered Technological) accidents
- Risk communication
- Hydrogen safety
- Participatory decision-making
- Disaster preparedness
- Community risk perception
- Technology acceptance
- Serious gaming
- Spatial and land-use planning

Relevant projects

SUSHy Project:
SUStainability and cost-reduction of Hydrogen stations through risk-based,multidisciplinary approaches (European-Japanese consortium) [ongoing]

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

Contact information

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Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management

Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
Multiple projects funded in the topic. Developed business models, market places, demonstrators and pilots, and many open-source models already developed and published.

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

William Throndsen

Department of Interdisciplinary studies of culture
Faculty of Humanities

Contact information

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Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-to-peer trading, often within pilot and demo settings.

Main foci are energy and technology use behavior, domestication of technology, user experience, household engagement and interaction.

Qualitative methodology oriented around interviews, focus groups, fostering knowledge and technology co-creation.

Relevant projects

IHSMAG

MATCH

INVADE

SENDER

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information

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Relevant links outside academia

Many Industry/public sector/ NGOs in the field of Energy, Renewables, Power generation, Solar PV industries, Smart Buildings, Aerial Monitoring, Unmanned Aerial Vehicle, Internet of Thing, Artificial Intelligence.

Expertise

Energy: Energy Systems, Energy Flexibility, Energy Building, Smart building, Smart Grid, Demand/Supply Side Management.

Renewable Energy: Renewable Energy Integration, Solar Photovoltaic Energy, Solar Cells, Photovoltaic Module/Component/System, Photovoltaic Power Plant, Integrated Photovoltaics (BiPV, ViPV, LSCPV, Floating PV, Agrivoltaic), Reliability and Durability of Photovoltaics. Autonomous Monitoring and Analysis: Autonomous Aerial Monitoring, Autonomous Faults Detection, Autonomous Control and Monitoring Systems, Autonomous Remote Sensing. Enabling Technologies: Unmanned Aerial Vehicle (UAV), Artificial Intelligence (AI), Deep/Machine Learning, Digital Twin (DT), Big Data Analysis (BDA), Internet of Thing (IoT), Satellite Data. Photonics: Luminescent Solar Concentrator, Optical Materials, Ray Tracing.

Relevant projects

- Experiences in several national and EU-funded projects:
- COLLECTiEF – Collective Intelligence for Energy Flexibility. Role: Coordinator
- Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/ Member of committee
- SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager
- Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager
- The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)
- Energy Systems Integration (ESI)
- MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production

Xinlu Qiu

Department of NTNU Business School
Faculty of Economics and Management

Contact information

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+47 942 56 320

Expertise

Social science, SSH, strategic management, public procurement, sustainability, renewable energy, SME, business model innovation, eco-system, energy-related decision- making

Relevant projects

ECHOES - Energy CHOices supporting the Energy Union and the Set-Plan

XPRESS - Support for Public Procurements to facilitate the collaboration between SMEs and public sector for the development and adoption in renewables in regions

EZEMCON - Ecosystem for Zero Emission Construction Sites

Gearóid Lydon

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

gearoid.lydon@ntnu.no
+4796924439

Relevant links outside academia

HVAC system manufacturers and the construction industry.

Relevant expertise

Associate Professor for the integration of renewable energy systems in the built environment. Focusing on the interaction between thermal energy systems, structures, and architecture. Multidisciplinary experience in relation to prototype development, large-scale demonstrators, and spin-off companies.

Specific expertise:
Building physics, building performance simulation, numerical and experimental thermal analysis, heating and cooling systems, HVAC systems, digital fabrication, design of energy-positive buildings, and the implementation of demonstrator projects.

Relevant projects

NCCR Digital Fabrication, Swiss National Science Foundation (SNSF):
Performance-Integrated 3D Printing
Fostering Implementation: Sustainability, Performance and Applicability
NEST HiLo, coordinator for building energy systems and research planning.

Francesco Goia

Department of Architecture and Technology Faculty of Architecture and Design

Contact information

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+4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control

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Mrudhula Koshy

Department of Architecture and Planning
Faculty of Architecture and Design

Contact information

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Relevant links outside academia

ICLEI Europe, EGGS design (Nordic), Global Resilience Partnership, Drift for Transition (Rotterdam, NL), Manyone (Copenhagen), PosadMaxwan (NL), All-India Institute of Local Self-government (India)

Expertise

Urban Planning, Urban Design, Planning under uncertainty, environmental crises, contingency planning, nature-based solutions, multi-stakeholder processes and management, participatory methods, decision-making under uncertainty, resilience, climate change adaptation, risk management, intersectionality, gender, diversity, transdisciplinarity, multi-scalar spatial strategies

Relevant projects

- Erasmus+ global mobility
- ENHANCE cooperation
- UTFORSK NISA

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

Building Energy simulations, Building CFD-CHT, Building Carbon Emissions, BIM, BIM-BEM Linkage, Facade Performance simulations, BIPV

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

sebastien.gros@ntnu.no
+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
Smart building management, energy communities, smart grids, AI tools, multi-agent systems, decision under uncertainty.

Inger Andresen

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information

inger.andresen@ntnu.no
+4740649405

Relevant links outside academia
industry, public sector, NGOs

Expertise
Zero Emission Buildings

Zero Emission Neighbourhoods

Plus Energy Neighbourhoods

Climate Positive Circular Communities

Relevant projects
H2020 syn.ikia - Sustainable Plus Energy Neighbourhoods

H2020 ARV - Climate Positive Circular Communities

ASSOCIATED RESEARCHERS

Destination 5:
Clean and competitive solutions for all transport modes

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 5.

The following pages are sorted into the calls for the destination presented in the draft for cluster 5. To simplify your navigation among available expertise per topic, the list of topics have been made clickable.

DESTINATION 5 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Clean and competitive solutions for all transport modes.

Zero-emission road transport

HORIZON-CL5-2024-D5-01-01: Smart, low-cost pervasive stationary slow charging and bi-directional solutions synergic with the grid for EV mass deployment (2ZERO Partnership)

HORIZON-CL5-2024-D5-01-02: Integration and testing of next generation post-800V electric powertrains (2ZERO Partnership)

HORIZON-CL5-2024-D5-01-04: Integrated flexible multipoint megawatt charging systems for electric truck mass deployment (2ZERO Partnership) (2024)

HORIZON-CL5-2024-D5-01-06: New designs, shapes, functionalities of Light Commercial Vehicles (2ZERO Partnership)

Aviation.

HORIZON-CL5-2024-D5-01-07: Accelerating climate neutral aviation, minimising non-CO2 emissions

HORIZON-CL5-2024-D5-01-09: Impact monitoring of EU Aviation R&I.

HORIZON-CL5-2024-D5-01-10: Towards a flying testbed for European leadership in aviation

DESTINATION 5 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Waterborne transport

HORIZON-CL5-2024-D5-01-11: Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)

HORIZON-CL5-2024-D5-01-12: Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the "Fit for 55" package objective by 2030 (ZEWT Partnership)

HORIZON-CL5-2024-D5-01-13: Demonstration of Technologies to minimise underwater noise generated by waterborne transport (ZEWT Partnership)

HORIZON-CL5-2024-D5-01-14: Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)

HORIZON-CL5-2024-D5-01-15: Advanced digitalisation and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT Partnership)

HORIZON-CL5-2024-D5-01-16: Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT Partnership)

HORIZON-CL5-2024-D5-01-17: Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership so as to increase synergies and impact (ZEWT Partnership)

Transport-related health and environment

HORIZON-CL5-2024-D5-01-18: Assessment of air pollutant emissions from low-carbon fuels in the heavy-duty, aviation, and maritime sectors.

HORIZON-CL5-2024-D5-01-01: Smart, low-cost pervasive stationary slow charging and bi-directional solutions synergic with the grid for EV mass deployment (2ZERO Partnership)

Pedro Crespo del Granado

Department of Industrial Economics and Technology Management
Faculty of Economics and Management

Contact information

pedro@ntnu.no
+47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Expertise

Professor (Associate) at the intersection of energy economics, energy transition, power systems, operations research, and data analytics. Multi-disciplinary experience in European and National Funded Projects.

Modelling Power markets, energy communities, distribution grids, transmission grid expansion, hydrogen modelling, role of digitalization in the energy transition, energy storage, smart grids, smart buildings, local electricity markets and others.

Expertise specific to this call:
EV and Battery models in distribution grids accounting for distribution grid planning and flexibility

Relevant projects

Coordinator: BEYOND project (H2020), Energy communities, markets and blockchain

H2020/HEU projects:
SENDER (Task lead + NTNU team lead),
Syn.ikia (tasks lead),
ARV(task contributor),
ENERGICA (task lead),
openENTRANCE(WP lead),
SetNAV (WP lead),
INVADE (Task contributor),
CityXChange (task Lead),
TRANSFORMAR (Task contributor),
PATTERN (Task contributor + NTNU team lead) and others.

HORIZON-CL5-2024-D5-01-02: Integration and testing of next generation post 1200V electric powertrains (2ZERO Partnership)

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information

dimosthenis.peftitsis@ntnu.no

Relevant links outside academia

CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise

Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:
High-voltage WBG power semiconductors

Relevant projects

1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.
2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.
3. Optimized Battery Energy Storage Systems (ORBES) project.
4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

HORIZON-CL5-2024-D5-01-04: Integrated flexible multipoint megawatt charging systems for electric truck mass deployment (2ZERO Partnership) (2024)

Dimosthenis Peftitsis

Department of Electric Power Engineering
Faculty of Information Technology and Electrical Engineering

Contact information
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Relevant links outside academia
CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi electric, Markel Poland.

Relevant expertise
Power electronics, design of power converters, reliability of power electronics, Wide bandgap power electronics, power semiconductors

Expertise specific to this call:
Power electronic converters design for charging infrastructure, modularised and reconfigurable converters, WBG power semiconductors

Relevant projects
1. Modularized, Reconfigurable and Bidirectional Charging Infrastructure for Electric Vehicles with Silicon Carbide Power Electronics (MoReSiC) project.
2. Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC) project.
3.Optimized Battery Energy Storage Systems (ORBES) project.
4. Reliability and Ruggedness of High Power, High Voltage Power Electronics (ReliPE) project.

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information
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+47 459 17 969

Relevant links outside academia
DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise
- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects
Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific to this call:
EV charging, multi-agent systems, decision-making under uncertainty.

HORIZON-CL5-2024-D5-01-06: New designs, shapes, functionalities of Light Commercial Vehicles (2ZERO Partnership)

Richard Hann

Department of Engineering Cybernetics
Faculty of Information Technology and Electrical Engineering

Contact information

richard.hann@ntnu.no
+4748020891

Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Expertise

- Atmospheric icing
- UAV, UAM, AAM
- Computational Fluid Mechanics (CFD)
- Icing CFD
- Pathplanning for UAVs
- Ice detection

Expertise specific to this call:
In-flight icing on UAVs, UAM, AAM vehicles

Relevant projects

Several RCN projects, IPN, ITKPLUSS

HORIZON-CL5-2024-D5-01-07: Accelerating climate neutral aviation, minimising non-CO2 emissions

Richard Hann

Contact information
richard.hann@ntnu.no
+4748020891

Relevant links outside academia
- UBIQ Aerospace
- VTT Finland
- DLR Germany

Expertise
- Atmospheric icing
- UAV, UAM, AAM
- Computational Fluid Mechanics (CFD)
- Icing CFD
- Pathplanning for UAVs
- Ice detection

Expertise specific to this call:
In-flight icing on UAVs, UAM, AAM vehicles

Relevant projects
Several RCN projects, IPN, ITKPLUSS

Federico Ustolin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

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federico.ustolin@ntnu.no
41328568

Relevant links outside academia
Air Liquide, Shell, Kawasaki Heavy Industries, Airbus, Daimler, Gexcon, Sandia National Laboratories. Working groups: CEN - CENELEC - Sector Forum Energy Management – Working Group Hydrogen, International Energy Agency Hydrogen TCP Task 43

Expertise
Process safety; consequence analysis; numerical modelling including computational fluid dynamics (CFD); multiphase flow simulations; risk analysis; hydrogen safety; accident investigation; modelling of potential accident scenarios; definition of effective safety measures; cryogenic technologies.

Relevant projects
1. SH2IFT - Safe Hydrogen Fuel Handling and Use for Efficient Implementation

2. H2CoopStorage - Responding to the challenges posed by the deployment of renewable energy production means

3. SH2IFT-2 - Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2

4. SUSHy - Sustainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches

5. HYDROGENi (FME) - Norwegian research and innovation center for hydrogen and ammonia

HORIZON-CL5-2024-D5-01-09: Impact monitoring of EU Aviation R&I

Richard Hann

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Faculty of Information Technology and Electrical Engineering

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Relevant links outside academia
- UBIQ Aerospace
- VTT Finland
- DLR Germany

Expertise
- Atmospheric icing
- UAV, UAM, AAM
- Computational Fluid Mechanics (CFD)
- Icing CFD
- Pathplanning for UAVs
- Ice detection

Expertise specific to this call:
In-flight icing on UAVs, UAM, AAM vehicles

Relevant projects
Several RCN projects,
IPN, ITKPLUSS

HORIZON-CL5-2024-D5-01-10: Towards a flying testbed for European leadership in aviation

Richard Hann

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Faculty of Information Technology and Electrical Engineering

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Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Expertise

- Atmospheric icing
- UAV, UAM, AAM
- Computational Fluid Mechanics (CFD)
- Icing CFD
- Pathplanning for UAVs
- Ice detection

Expertise specific to this call:
In-flight icing on UAVs, UAM, AAM vehicles

Relevant projects

Several RCN projects,
IPN, ITKPLUSS

HORIZON-CL5-2024-D5-01-11: Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information
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+4791702345

Relevant projects:
Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:
DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D5-01-12: Combining state-of-the-art emission reduction and efficiency improvement technologies tin ship design and retrofitting for contributing to the "Fit for 55" package objective by 2030 (ZEWT Partnership)

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

wenjun.lu@ntnu.no
+47 413 94 838

Relevant links outside academia

- Equinor
- Multiconsult
- Norconsult Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise

- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects

- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D5-01-14: Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information
dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:
Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:
DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D5-01-15: Advanced digitalisation and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT Partnership)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
AI-based data analysis; data fusion.

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

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+47 413 94 838

Relevant links outside academia

- Equinor
- Multiconsult
- Norconsult Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise

- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects

- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

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+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D5-01-18: Assessment of air pollutant emissions from low-carbon fuels in the heavy-duty, aviation, and maritime sectors

Magnus Rønningen

Department of Chemical Engineering
Faculty of Natural Sciences

Contact information

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+4791897585

Expertise

My research work is concentrated on the following aspects of heterogeneous catalysis:

Fuels from natural gas and biomass; Fischer-Tropsch synthesis; H2 production; Catalytic NO oxidation for nitric acid production; Development of new catalytic materials to substitute critical raw materials; Environmental catalysis; Selective catalytic reduction of NOx; Photocatalytic H2 production; Biomass valorisation; In situ characterisation of catalysts at industrially relevant conditions using synchrotron X-ray based techniques, in situ Raman, FT-IR and UV-vis spectroscopy

Relevant projects

-BIKE - Bimetallic catalysts knowledge-based development for energy applications (H2020)

-FREECATS - Doped carbon nanostructures as metal-free catalysts (FP7) -FASTCARD - Fastindustrialisation by catalysts research and development (FP7)

-Industrial Catalysis Science and Innovation (iCSI) for a competitive and sustainable process industry (NFR)

Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information

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+47 73594048

Relevant links outside academia

Many industry partners (metal-producing industries in Norway and other parts of Europe; surface pretreatment producing industries); Local museums.

Expertise

Materials degradation (corrosion) and integrity on a molecular, mesoscropic to macroscopic level; application areas structural materials, energy conversion, functional materials

Materials interaction with environment (incl. complex biological environments in the body)

Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques

Surface treatment of metals and semiconductors (pretreatment, etching, etc.) incl. recycled aluminium

Electrochemical techniques

Data analysis and machine learning techniques in relation to the above

Relevant projects

Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN

ASSOCIATED RESEARCHERS

Destination 6:
Safe, Resilient Transport and Smart Mobility services for passengers and goods

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 6.

The following pages are sorted into the calls for the destination presented in the draft for cluster 5. To simplify your navigation among available expertise per topic, the list of topics have been made clickable.

DESTINATION 6 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

Call - Safe, Resilient Transport and Smart Mobility services for passengers and goods.

Connected, Cooperative and Automated Mobility (CCAM)

HORIZON-CL5-2023-D6-01-01: User-centric development of vehicle technologies and solutions to optimise the on-board experience and ensure inclusiveness (CCAM Partnership)

HORIZON-CL5-2023-D6-01-02: Generation of scenarios for development, training, virtual testing and validation of CCAM systems (CCAM Partnership)

HORIZON-CL5-2023-D6-01-03: Infrastructure-enabled solutions for improving the continuity or extension of Operational Design Domains (ODDs) (CCAM Partnership)

HORIZON-CL5-2023-D6-01-04: Integrating European diversity in the design, development and implementation of CCAM solutions to support mobility equity (CCAM Partnership)

HORIZON-CL5-2023-D6-01-05: CCAM effects on jobs and education, plans for skills that match the CCAM development, and prerequisites for employment growth (CCAM Partnership)

Multimodal transport, infrastructure and logistics.

HORIZON-CL5-2023-D6-01-06: Zero-emission e-commerce and freight delivery and return choices by retailers, consumers and local authorities.

HORIZON-CL5-2023-D6-01-07: Operational automation to support multimodal freight transport

HORIZON-CL5-2023-D6-01-08: Future-proof GHG and environmental emissions factors for accounting emissions from transport and logistics operations.

HORIZON-CL5-2023-D6-01-09: Climate resilient and safe maritime ports.

Safety and resilience.

HORIZON-CL5-2023-D6-01-10: Better infrastructure safety on urban and secondary rural roads throughout a combination of adaptable monitoring and maintenance solutions.

DESTINATION 6 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

HORIZON-CL5-2023-D6-01-11: Aviation safety - Uncertainty quantification for safety and risk management

HORIZON-CL5-2023-D6-01-12: New ways of reducing serious injuries and the long-term consequences of road crashes.

Cross-cutting actions.

HORIZON-CL5-2023-D6-01-13: Support for dissemination events in the field of Transport Research

Call - Safe, Resilient Transport and Smart Mobility services for passengers and goods.

Connected, Cooperative and Automated Mobility (CCAM)

HORIZON-CL5-2024-D6-01-01: Centralised, reliable, cyber-secure & upgradable in-vehicle electronic control architectures for CCAM connected to the cloud-edge continuum (CCAM Partnership)

HORIZON-CL5-2024-D6-01-02: Scenario-based safety assurance of CCAM and related HMI in a dynamically evolving transport system (CCAM Partnership)

HORIZON-CL5-2024-D6-01-03: Orchestration of heterogeneous actors in mixed traffic within the CCAM ecosystem (CCAM Partnership)

HORIZON-CL5-2024-D6-01-04: AI for advanced and collective perception and decision making for CCAM applications (CCAM Partnership)

HORIZON-CL5-2024-D6-01-05: Robust Knowledge and Know-How transfer for Key-Deployment Pathways and implementation of the EU-CEM (CCAM Partnership)

Multimodal transport, infrastructure and logistics.

HORIZON-CL5-2024-D6-01-06: Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport

HORIZON-CL5-2024-D6-01-07: Scaling up logistics innovations supporting freight transport decarbonisation in an affordable way.

DESTINATION 6 - CALLS

DISCLAIMER: Please notice that the Topics list is clickable to allow you to immediately reach the one for which you could be intersted to open a collaboration dialogue with NTNU

HORIZON-CL5-2024-D6-01-08: Improved transport infrastructure performance – Innovative digital tools and solutions to monitor and improve the management and operation of transport infrastructure

HORIZON-CL5-2024-D6-01-09: Policies and governance shaping the future transport and mobility systems.

Safety and resilience.

HORIZON-CL5-2024-D6-01-10: Ensuring the safety, resilience and security of waterborne digital systems

HORIZON-CL5-2024-D6-01-11: Effects of disruptive changes in transport: towards resilient, safe and energy efficient mobility.

HORIZON-CL5-2024-D6-01-12: A new framework to improve traffic safety culture in the EU

HORIZON-CL5-2023-D6-01-01: User-centric development of vehicle technologies and solutions to optimise the on-board experience and ensure inclusiveness (CCAM Partnership)

Eleftherios Papachristou

Department of Design
Faculty of Architecture and Design

Contact information
eleftherios.papachristos@ntnu.no
+47 47707238

Expertise
- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and AI
- Interface Evaluation.

Relevant projects
rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)

Xinlu Qiu

Department of NTNU Business School
Faculty of Economics and Management

Contact information
xinlu.qiu@ntnu.no
+47 942 56 320

Expertise
Social science, SSH, strategic management, public procurement, sustainability, renewable energy, SME, business model innovation, eco-system, energy-related decision- making

Relevant projects
ECHOES - Energy CHOices supporting the Energy Union and the Set-Plan

XPRESS - Support for Public Procurements to facilitate the collaboration between SMEs and public sector for the development and adoption in renewables in regions.

EZEMCON - Ecosystem for Zero Emission Construction Sites

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

govert.valkenburg@ntnu.no
+47 94896748

Expertise

Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

HORIZON-CL5-2023-D6-01-02: Generation of scenarios for development, training, virtual testing and validation of CCAM systems (CCAM Partnership)

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno- economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

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Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

govert.valkenburg@ntnu.no
+47 94896748

ExpertiseRelevant projects

Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

HORIZON-CL5-2023-D6-01-03: Infrastructure-enabled solutions (e.g. Digital Twins) for improving the continuity or extension of Operational Design Domains (ODDs) (CCAM Partnership)

Arvind Sharma

Department of Information Security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information

arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia

Industry and research instructional collaboration

Expertise

Renewable energy, Testing, technology development and assessment, techno- economic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development

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Daniel Cantero

Department of Structural Engineering
Faculty of Engineering

Contact information

daniel.cantero@ntnu.no
+4773594521

Expertise

Structural engineer with focus on study of existing bridges.

Relevant fields: bridge weigh-in-motion (BWIM), traffic loading, vehicle bridge interaction, structural health monitoring, dynamics, monitoring, modelling, signal processing

Expertise specific to this call:
modelling, monitoring

Relevant projects

Arches = as researcher Notes

project = as researcher Long Life

Bridges = as postdoc

Bridge-Mon = as postdoc

IMSAFE = Collaborator

HORIZON-CL5-2023-D6-01-08: Future-proof GHG and environmental emissions factors for accounting emissions from transport and logistics operations

Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

Contact information
anshuman.a.mishra@ntnu.no
+47 486 61 996

Expertise

- Building Energy simulations
- Building CFD-CHT Building Carbon Emissions
- BIM
- BIM-BEM Linkage
- Facade Performance simulations
- BIPV

HORIZON-CL5-2023-D6-01-09: Climate resilient and safe maritime ports

Xu Lu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xu.lu@ntnu.no
+4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and ex-situ hydrogen environment, including slow strain rate testing, fatigue testing, microcantilever bending, micropillar compression, nanoindentation testing.
- Advanced technique for studying hydrogen uptake, diffusion and trapping behavior using thermal desorption spectroscopy, permeation testing.
- Advanced materials characterization technique including SEM, EBSD, EDS, ECCI, FIB, AFM, TEM, APT.

Relevant links outside academia

Industrial partners: Equinor, Aker Solution, Voestalpine AG, Böhler Edelstahl GmbH & Co KG, Total Energy, FORCE Technology, IceTec.

University: RWTH-Aachen University, Ghent University, La Rochelle University, Curtin University, University of Burgos.

Research centers: SINTEF, SWERIM, Max-Plank-Institute of iron research.

Relevant projects

Multiscale Hydrogen Embrittlement Assessment for Subsea Conditions (M-HEAT)

Safe Pipelines for Hydrogen Transport (HyLINE)

High strength hydrogen resistant alloys (HyResMat) project within the COMET-K2-Center MPPE

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

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+47 413 94 838

Relevant links outside academia

- Equinor
- Multiconsult
- Norconsult Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise

- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis
- optimization

Relevant projects

- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSealce funded by RCN
- Wisting field iceberg studies funded by Equinor

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information

nicola.paltrinieri@ntnu.no
+47 944 99 218

Relevant links outside academia

SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Expertise

Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
Risk management

Relevant projects

SH2IFT Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage

SH2IFT-2 Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2

SUSHy Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches

HYDROGENi Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels

HySET Hydrogen Systems and Enabling Technologies

HyInHeat Hydrogen technologies for decarbonization of industrial heating processes

H2Glass Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

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Anshuman Abhisek Mishra

Department of Architecture and Technology
Faculty of Architecture and Design

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+47 486 61 996

Expertise

- Building Energy simulations
- Building CFD-CHT Building Carbon Emissions
- BIM
- BIM-BEM Linkage
- Facade Performance simulations
- BIPV

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (NESS), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (NINJAS4CARE), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (NOR-VIS), a NORPART project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (SUSHy), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- AutoPRO - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

HORIZON-CL5-2023-D6-01-10: Better infrastructure safety on urban and secondary rural roads throughout a combination of adaptable monitoring and maintenance solutions

Dimitrios Tzioutzios

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

dimitrios.tzioutzios@ntnu.no

Relevant link outside academia

Local government organisations in Japan, Colombia and Greece

First responder associations in Japan

Companies in the petrochemical and energy sector in Japan, Colombia and Norway

Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise

- Disaster risk management
- Natech (Natural hazard-triggered Technological) accidents
- Risk communication
- Hydrogen safety
- Participatory decision-making
- Disaster preparedness
- Community risk perception
- Technology acceptance
- Serious gaming
- Spatial and land-use planning

Relevant projects

SUSHy Project:
SUStainability and cost-reduction of Hydrogen stations through risk-based,multidisciplinary approaches (European-Japanese consortium) [ongoing]

Inge Hoff

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

inge.hoff@ntnu.no
+4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Expertise

Transport infrastructure, design, construction and maintenance of roads.

Materials for road construction.

Condition surveying.

Expertise specific to this call:
Supervised several PhD-students on maintenance of low volume roads

Relevant projects

IM-SAFE (EU). Several other national and international projects on roads.

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia
DNV

Expertise
Fault diagnosis/prognosis and fault-tolerance Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
Safety and resilience evaluation and analysis.
Maintenance optimization.

Relevant projects
2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Daniel Cantero

Department of Structural Engineering
Faculty of Engineering

Contact information

daniel.cantero@ntnu.no
+4773594521

ExpertiseRelevant projects
Structural engineer with focus on study of existing bridges.

Relevant fields: bridge weigh-in-motion (BWIM), traffic loading, vehicle bridge interaction, structural health monitoring, dynamics, monitoring, modelling, signal processing

Expertise specific to this call:
Bridge weigh-in-motion (BWIM)

Arches = as researcher Notes

project = as researcher Long Life

Bridges = as postdoc

Bridge-Mon = as postdoc

IMSAFE = Collaborator

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (NESS), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (NINJAS4CARE), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (NOR-VIS), a NORPART project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (SUSHy), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- AutoPRO - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

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Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 929 80 847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Performance monitoring; maintenance optimization; risk analysis

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

HORIZON-CL5-2023-D6-01-11: Aviation safety - Uncertainty quantification for safety and risk management

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information
nicola.paltrinieri@ntnu.no
+47 944 99 218

Relevant links outside academia
SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Expertise
Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
Safety and risk management

Relevant projects
- SH2IFT Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage
- SH2IFT-2 Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2
- SUSHy Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches
- HYDROGENi Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels
- HySET Hydrogen Systems and Enabling Technologies
- HyInHeat Hydrogen technologies for decarbonization of industrial heating processes
- H2Glass Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

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Leonardo Montecchi

Department of Computer Science
Faculty of Engineering

Contact information
leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia
ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise
Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects
ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (NESS), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (NINJAS4CARE), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (NOR-VIS), a NORPART project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (SUSHy), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- AutoPRO - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

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Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Risk analysis

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

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HORIZON-CL5-2024-D6-01-01: Centralised, reliable, cyber-secure & upgradable in-vehicle electronic control architectures for CCAM connected to the cloud-edge continuum (CCAM Partnership)

Leonardo Montecchi

Department of Computer Science
Faculty of Engineering

Contact information

leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia

DNV

Expertise

Fault diagnosis/prognosis and fault-tolerance Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
Reliability engineering; cyber security.

Relevant projects

2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

HORIZON-CL5-2024-D6-01-02: Scenario-based safety assurance of CCAM and related HMI in a dynamically evolving transport system (CCAM Partnership)

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

Contact information

leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

HORIZON-CL5-2024-D6-01-03: Orchestration of heterogeneous actors in mixed traffic within the CCAM ecosystem (CCAM Partnership)

Eleftherios Papachristou

Department of Design
Faculty of Architecture and Design

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eleftherios.papachristos@ntnu.no
+47 477 07 238

Expertise
- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and AI
- Interface Evaluation.

Relevant projects
rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

ExpertiseRelevant projects
Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

HORIZON-CL5-2024-D6-01-04: AI for advanced and collective perception and decision making for CCAM applications (CCAM Partnership)

Eleftherios Papachristou

Department of Design
Faculty of Architecture and Design

Contact information
eleftherios.papachristos@ntnu.no
+47 47707238

Expertise
- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and AI
- Interface Evaluation.

Relevant projects
rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
yin.shen@ntnu.no

Relevant links outside academia
DNV

Expertise
Fault diagnosis/prognosis and fault-tolerance Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

- **Expertise specific to this call:**
  Data fusion;
  AI-based decision making.

Relevant projects
2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

govert.valkenburg@ntnu.no
+47 94896748

ExpertiseRelevant projects

Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

Sebastien Gros

Department of Engineering Cybernetics
Faculty of Information Technology

Contact information

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+47 459 17 969

Relevant links outside academia

DNV, Equinor, Volvo, Mitsubishi Electric, ABB, SWM, IAV, SINTEF, multiple small and medium companies related to energy, buildings, and digitalization of energy.

Expertise

- Energy: energy management, flexible demand-response, power markets, smart buildings, building modelling, battery ageing, battery management, EV charging, PV energy, wind energy, Internet of Things, energy communities, local power markets, hydropower.
- Mobility: autonomous driving, traffic management, powertrain optimization, collaborative driving.
- Methodologies: optimization under uncertainty, Model Predictive Control, Markov Decision Processes, multi-agent systems, distributed optimization, digital twins, model-free optimization, data-driven optimization, Reinforcement Learning, process optimization, numerical optimization, stochastic decision making.

Relevant projects

Number of projects related to safe reinforcement learning, data-driven optimization, stochastic optimal control, powertrain optimization, 2nd life of batteries, battery ageing, autonomous driving, smart house optimization, energy storage, wind energy, EV charging, energy communities, PV + battery optimization.

Expertise specific for the call:

Autonomous driving, AI tools.

HORIZON-CL5-2024-D6-01-05: Robust Knowledge and Know-How transfer for Key-Deployment Pathways and implementation of the EU-CEM (CCAM Partnership)

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

ExpertiseRelevant projects

Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

HORIZON-CL5-2024-D6-01-06: Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport

Daniel Cantero

Department of Structural Engineering
Faculty of Engineering

Contact information
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+4773594521

Expertise
Structural engineer with focus on study of existing bridges.

Relevant fields: bridge weigh-in-motion (BWIM), traffic loading, vehicle bridge interaction, structural health monitoring, dynamics, monitoring, modelling, signal processing

Expertise specific to this call:
Bridge weigh-in-motion (BWIM)

Relevant projects
Arches = as researcher Notes

project = as researcher Long Life

Bridges = as postdoc

Bridge-Mon = as postdoc

IMSAFE = Collaborator

HORIZON-CL5-2024-D6-01-08: Improved transport infrastructure performance – Innovative digital tools and solutions to monitor and improve the management and operation of transport infrastructure

Inge Hoff

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

inge.hoff@ntnu.no
+4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Expertise

Transport infrastructure, design, construction and maintenance of roads.

Materials for road construction.

Condition surveying.

Relevant projects

IM-SAFE (EU). Several other national and international projects on roads.

Daniel Cantero

Department of Structural Engineering
Faculty of Engineering

Contact information

daniel.cantero@ntnu.no
+4773594521

ExpertiseRelevant projects

Structural engineer with focus on study of existing bridges.

Relevant fields: bridge weigh-in-motion (BWIM), traffic loading, vehicle bridge interaction, structural health monitoring, dynamics, monitoring, modelling, signal processing.

Arches = as researcher Notes

project = as researcher Long Life

Bridges = as postdoc

Bridge-Mon = as postdoc

IMSAFE = Collaborator

Wenjun Lu

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
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+47 413 94 838

Relevant links outside academia
- Equinor
- Multiconsult
- Norconsult Aker Solution
- Norwegian Coastal Administration
- Norwegian Petroleum safety authority

Expertise
- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
- ice dynamics
- ice/iceberg drift
- ice modelling
- ice load
- wave-iceberg interactions
- iceberg impacts
- sea spray icing
- fracture of quasi-brittle materials
- fracture mechanics
- damage mechanics
- numerical modelling (FEM, DEM, etc.)
- image processing (e.g., satellite images, optical camera images)
- data analysis

Relevant projects
- Sustainable Arctic and Coastal Technology funded by RCN and industries
- Green Ice Management funded by VISTA scholar funding
- DigitalSeaIce funded by RCN
- Wisting field iceberg studies funded by Equinor

HORIZON-CL5-2024-D6-01-09: Policies and governance shaping the future transport and mobility systems

Eleftherios Papachristou

Department of Design
Faculty of Architecture and Design

Contact information

eleftherios.papachristos@ntnu.no
+47 47707238

Expertise

- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and AI
- Interface Evaluation.

Relevant projects

rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information

govert.valkenburg@ntnu.no
+47 94896748

ExpertiseRelevant projects

Interpretive social-scientific expertise. **Social scientist with additional** backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS
(privacy and security),

MILESECURE2050
(low-carbon transitions and energy security).

HORIZON-CL5-2024-D6-01-10: Ensuring the safety, resilience and security of waterborne digital systems

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information
nicola.paltrinieri@ntnu.no
+47 944 99 218

Relevant links outside academia
SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Expertise
Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
Safety and resilience

Relevant projects
- SH2IFT Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage
- SH2IFT-2 Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2
- SUSHy Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches
- HYDROGENi Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels
- HySET Hydrogen Systems and Enabling Technologies
- HyInHeat Hydrogen technologies for decarbonization of industrial heating processes
- H2Glass Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

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Leonardo Montecchi

Department of Computer Science
Faculty of Engineering

Contact information
leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia
ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise
Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects
ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Shen Yin

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yin.shen@ntnu.no

Relevant links outside academia
DNV

Expertise
Fault diagnosis/prognosis and fault-tolerance Reliability, safety, and security
System and control theory
Data-driven monitoring and optimization
Machine learning and computer vision
Applications on health diagnosis and cyber-physical systems
Automation Technology in Process Industries

Expertise specific to this call:
- Risk analysis; resilience evaluation.

Relevant projects
2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian directorate for Higher Education and Skills, PI.

2022-2023: Towards safety and security of autonomous systems against cyber-physical attacks, funded by SUBPRO (Center for Research-based Innovation (SFI) within subsea production and processing), PI.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI. 2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.

2021-2024: Digital twin qualification for maintenance, funded by SUBPRO, PI.

2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO, PI.

Yiliu Liu

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise
- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects
- Norway-ASEAN consortium in risk management for safer and sustainable ocean (NESS), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (NINJAS4CARE), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (NOR-VIS), a NORPART project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (SUSHy), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- AutoPRO - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Cyber security; design and evaluation of safe and resilient cyber physical systems

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

---

Dong Trong Nguyen

Department of Marine Technology
Faculty of Engineering

Contact information

dong.t.nguyen@ntnu.no
+4791702345

Relevant projects:

Horizon EU project FLEXSHIP (Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in multiple type of ships) Research Council of Norway project SIMPLEX (The role of simulation in assurance of intelligent and complex systems).

Relevant links outside academia:

DNV, CorPower Ocean, Moen Marin, Torhatten, Zeabuz.

HORIZON-CL5-2024-D6-01-11: Effects of disruptive changes in transport: towards resilient, safe and energy efficient mobility

Inge Hoff

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

inge.hoff@ntnu.no
+4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Expertise

Transport infrastructure, design, construction and maintenance of roads.

Materials for road construction.

Condition surveying.

Relevant projects

IM-SAFE (EU). Several other national and international projects on roads.

Nicola Paltrinieri

Department of Industrial Economics and Technology Management
Faculty of Engineering

Contact information

nicola.paltrinieri@ntnu.no
+47 944 99 218

Relevant links outside academia

SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF Community. Safetec

Expertise

Hydrogen safety; risk management; maintenance management; chemical process safety; human reliability; safety education and training.

Expertise specific to this call:
Safety and resilience

Relevant projects

- SH2IFT Safe Hydrogen Fuel Handling and Use for Efficient Implementation - H2 CoopStorage Development of Tools Enabling the Deployment and Management of a Multi-Energy Renewable Energy Community with Hybrid Storage
- SH2IFT-2 Safe Hydrogen Fuel Handling and Use for Efficient Implementation 2
- SUSHy Sustainability development and cost-reduction of hybrid renewable energies powered hydrogen stations by risk-based multidisciplinary approaches
- HYDROGENi Norwegian research and innovation centre for hydrogen and ammonia - HySchool Norwegian research school on hydrogen and hydrogen-based fuels
- HySET Hydrogen Systems and Enabling Technologies
- HyInHeat Hydrogen technologies for decarbonization of industrial heating processes
- H2Glass Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

Contact information

leonardo.montecchi@ntnu.no
+47 4628 6498

Relevant links outside academia

ResilTech s.r.l. (Italy):

Instituto Nacional de Pesquisas Espaciais, Brazil (National Institute for Space Research)

Expertise

Expertise in different kind of modeling techniques for the specification and verification of non-functional properties of complex systems.

- Verification & Validation
- Model-Based Systems Engineering
- Model-Driven Engineering
- Reliability Evaluation
- Probabilistic modeling and simulation
- Stochastic Petri Nets

Relevant projects

ADVANCE (MSCA-RISE-2018-823788),

CONCERTO (ARTEMIS-2012-1-333053),

CHESS (ARTEMIS-2008-1-100022)

Yiliu Liu

Department of Mechanical and Industrial Engineering

Faculty of Engineering

Contact information

yiliu.liu@ntnu.no
+4747441775

Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (NESS), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (NINJAS4CARE), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (NOR-VIS), a NORPART project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (SUSHy), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- AutoPRO - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

Dimitrios Tzioutzios

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

dimitrios.tzioutzios@ntnu.no

Relevant link outside academia

Local government organisations in Japan, Colombia and Greece

First responder associations in Japan

Companies in the petrochemical and energy sector in Japan, Colombia and Norway

Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise

- Disaster risk management
- Natech (Natural hazard-triggered Technological) accidents
- Risk communication
- Hydrogen safety
- Participatory decision-making
- Disaster preparedness
- Community risk perception
- Technology acceptance
- Serious gaming
- Spatial and land-use planning

Relevant projects

SUSHy Project:
SUStainability and cost-reduction of Hydrogen stations through risk-based,multidisciplinary approaches (European-Japanese consortium) [ongoing]

Xingheng Liu

Department of Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information

xingheng.liu@ntnu.no
+47 92980847

Relevant links outside academia

Equinor, Sintef

Expertise

Reliability engineering, Predictive Maintenance, Remaining useful life estimation, Maintenance optimization, Prognosis and health management

Expertise specific to this call:
Design and evaluation of safe and resilient cyber physical systems

Relevant projects

2020-2022, Estimation and optimization of remaining useful life for subsea equipment, funded by SUBPRO (Centre for Research-based Innovation (SFI) within subsea production and processing), Postdoc

2021-2022, BRU21 (NTNU Research and Innovation Program on Digital and Automation Solutions for the Oil and Gas Industry), Postdoc

2022-2023, Towards safety and security of autonomous cyber-physical systems, funded by SUBPRO, Researcher

---

Mrudhula Koshy

Department of Architecture and Planning
Faculty of Architecture and Design

Contact information

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Relevant link outside academia

- ICLEI Europe, EGGS design (Nordic)
- Global Resilience Partnership
- Drift for Transition (Rotterdam, NL)
- Manyone (Copenhagen) PosadMaxwan (NL)
- All-India Institute of Local Self-government (India)

Expertise

Urban Planning, Urban Design, Planning under uncertainty, environmental crises, contingency planning, nature-based solutions, multi-stakeholder processes and management, participatory methods, decision-making under uncertainty, resilience, climate change adaptation, risk management, intersectionality, gender, diversity, transdisciplinarity, multi-scalar spatial strategies

Relevant projects

- Erasmus+ global mobility
- ENHANCE cooperation
- UTFORSK NISA

HORIZON-CL5-2024-D6-01-12: A new framework to improve traffic safety in the EU, with reduced energy dependency of transport

Yiliu Liu

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Faculty of Engineering

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Expertise

- System reliability, safety and resilience analysis
- Operation/maintenance optimization, prognostics and condition-based maintenance
- Risk management and barrier management
- Methods to resolve risk and maintenance issues in energy industries, including oil & gas, hydrogen, and renewable energies, as well as in healthcare and transportation.

Relevant projects

- Norway-ASEAN consortium in risk management for safer and sustainable ocean (NESS), a NORGLOBAL 2 project, funded by Research Council of Norway, as the project manager.
- Norway-China-Japan-South Korea network for smart, safe and sustainable healthcare (NINJAS4CARE), a UTFORSK project funded by DIKU, as the project manager
- Norway-Vietnam industry and infrastructure safety consortium (NOR-VIS), a NORPART project funded by DIKU, as the project manager -Reliability and resilience analysis of green hydrogen production systems, PhD supervisor of WP4.1: Risk management framework, in FME HYDROGENI
- SUStainability development and cost-reduction of hybrid renewable energies powered Hydrogen stations by risk-based multidisciplinary approaches (SUSHy), co-investigator and leader of WP3: Emergency safety – To mitigate risks technically, funded by EIG Concert-Japan
- AutoPRO - Digitalization for Autonomous Prognosis and Production Optimization in Offshore Production Systems, co-investigator and leader of WP3: Condition-based maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council

---

Inge Hoff

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information

inge.hoff@ntnu.no
+4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Expertise

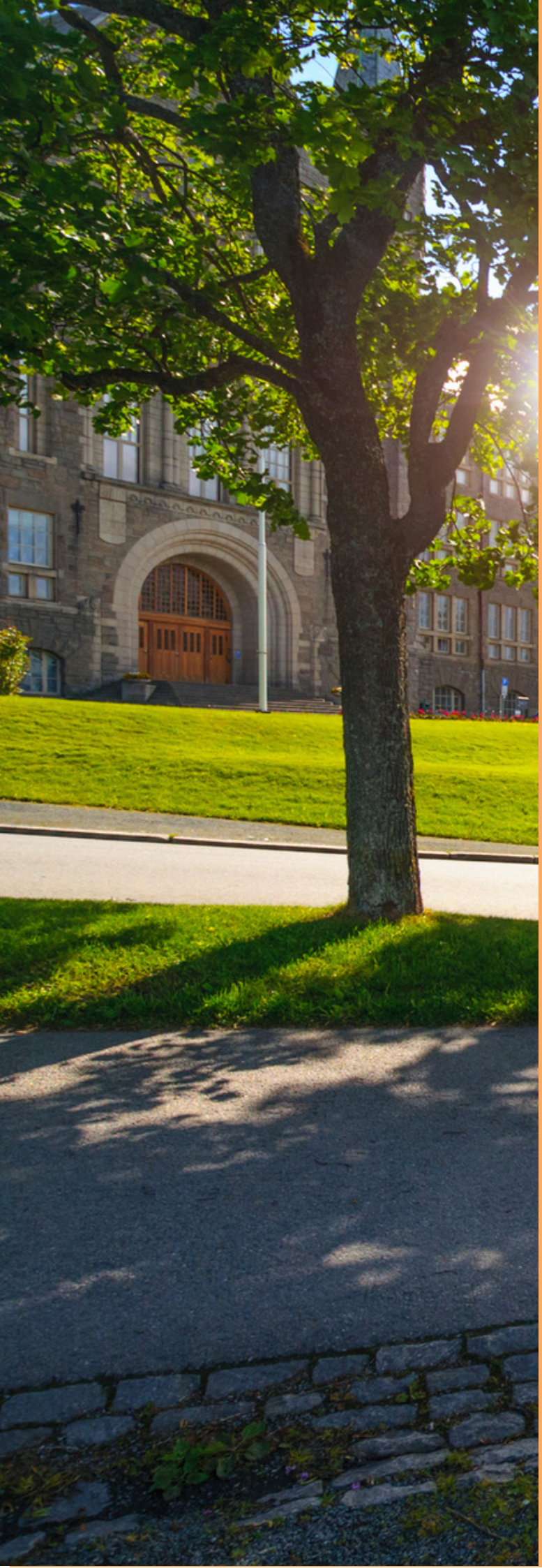
Transport infrastructure, design, construction and maintenance of roads.

Materials for road construction.

Condition surveying.

Relevant projects

IM-SAFE (EU). Several other national and international projects on roads.



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NTNU BRUSSELS OFFICE
NTNU DIGITAL, NTNU
ENERGY IE FACULTY

NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, IE FACULTY

PHOTOS
PAGE 1 - SHUTTERSTOCK
PAGES -NTNU, SINTEF

DESIGN AND LAYOUT
NTNU ENERGY
NTNU GRAFISK SENTER

June 2023