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



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 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.



1 of 4 strategic research areas



600 researchers on energy related topics



Norwegian Centre for Environmentfriendly Energy Research

Host/partner in 11 Norwegian Centres for Environmentfriendly Energy Research



7 of 8 faculties involved

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.

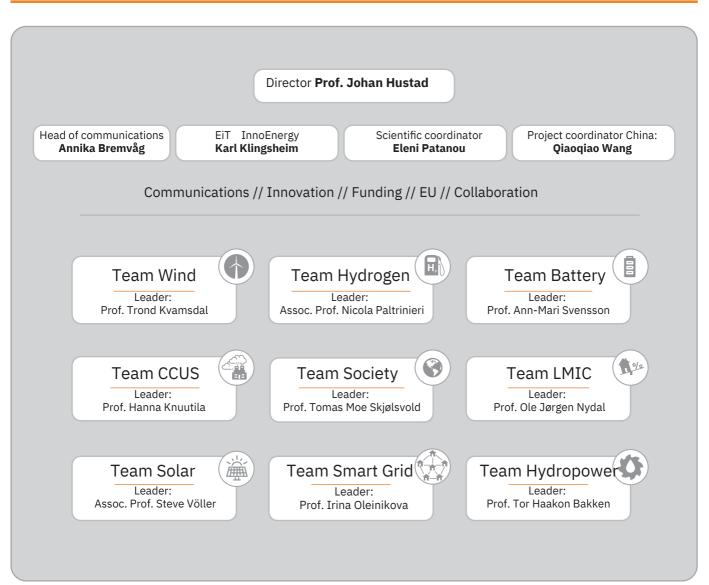
Find out more about the energy research at NTNU, the interdisciplinary energy research teams and the Norwegian Centres for Environmentfriendly Energy Research on our website:

https://www.ntnu.edu/energy

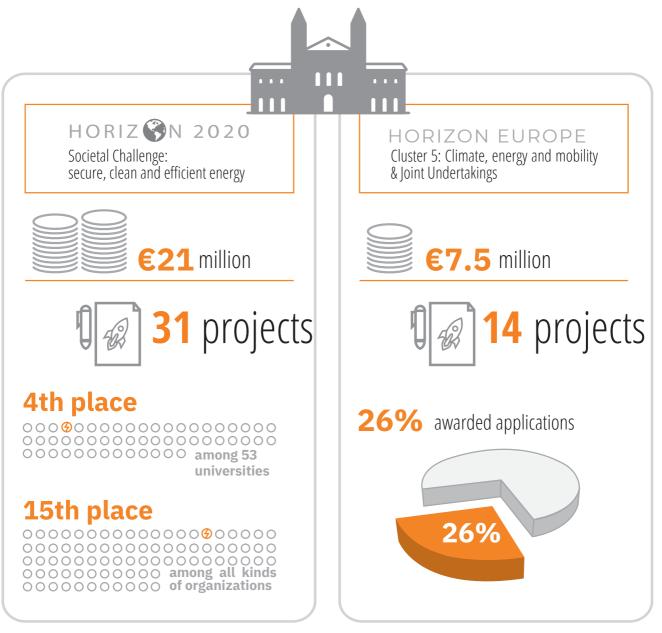
ENERGY TRANSITION TOPICS AT NTNU

- 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



NTNU'S PARTICIPATION IN EU PROJECTS



All data on this page as of November 2022

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











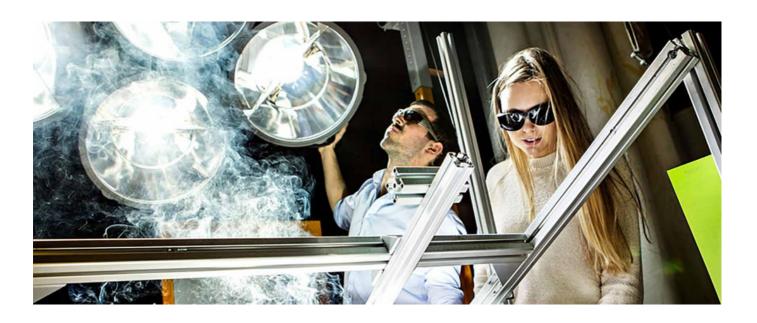




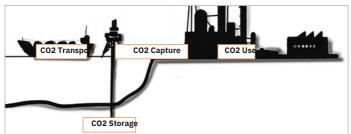


BATTERIES EUROPEAN PARTNERSHIP (BEPA)

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 components, and the testing and validation of systems for fuel cells and electrolysers.

More information: www.sintef.no/projectweb/nfch/





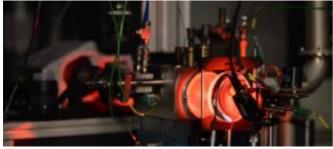
NTNU NanoLab is one of 4 cleanrooms within the Norwegian Micro- and Nanofabrication Facility (NorFab). It is run by a staff of 9 engineers and has 700 m2 cleanroom facilities with cleanliness ranging from ISO7 to ISO5 and vibration reduced zones at VCF-level.

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





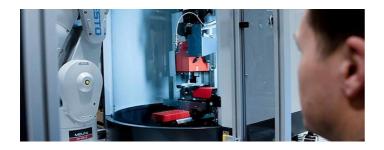
In **the Internal Combustion Engine Laboratory**, a Mercedes compression ignition engine is fitted to a Stuska water brake and used with a range of fuels, including 1st generation and 2nd generation biofuels.

More information: www.ntnu.edu/ept/internalcombustion-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

<u>Astrid Johansen</u>

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.

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

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

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-D1-01-01: Enhanced quantification and understanding of natural and anthropogenic methane emissions and sinks



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Expertise specific to this call:

With radiocarbon dating and d13C analysis, we can trace fossil and biogenic contributions in the carbon cycle, in fuels, materials and waste products.

Relevant projects

4OCEANS ClimateCultures FuturePast

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



Contact information richard.hann@ntnu.no +4748020891

Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Richard Hann

Department of Engineering CyberneticsFaculty of Information Technology and Electrical Engineering

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



Contact information wenjun.lu@ntnu.no +47 41394838

Relevant links outside academia

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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

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

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



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Relevant projects

4OCEANS ClimateCultures FuturePast



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Rita Bouman

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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 decisionmaking 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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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Relevant links outside academia

Multiple contacts in the energy industry and software companies

Rita Bouman

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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 decisionmaking on climate and environmental polices, Hydrogen Pathways 2050



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

Relevant links outside academia Cooperation with Statnett

Irina Oleinikova

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



Contact information xu.lu@ntnu.no +4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

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.

Xu Lu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and exsitu 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 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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia

industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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-D1-01-07: Quantification of the role of key terrestrial ecosystems on the carbon cycle and related climate effects



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Expertise specific to this call:

With radiocarbon dating and d13C analysis, we can trace fossil and biogenic contributions in the carbon cycle, in fuels, materials and waste products. We use dendrochronology and stable isotope analyses of free rings to reconstruct climate on regional and larger scales.

Relevant projects

4OCEANS ClimateCultures FuturePast

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.

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

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

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: 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)

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

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



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

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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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)



Contact information yin.shen@ntnu.no

Relevant links outside academia

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, Pl.

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.

Shen Yin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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 cyberphysical systems Automation Technology in Process Industries

Expertise specific to this call:

New methods in quantification and evaluation of resilience and sustainability

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.



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



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

Xinlu Qiu

Department of NTNU Business School Faculty of Economics and Management

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



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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)



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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

Relevant links outside academia SINTEF Industry, SINTEF Energy, SINTEF Digital, SINTEF Ocean and SINTEF

Nicola Paltrinieri

Department of Industrial Economics and Technology ManagementFaculty of Engineering

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

Community. Safetec

- 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



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

Govert Valkenburg

Department of Interdisciplinary Studies of CultureFaculty of Humanities

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).



Contact information william.throndsen@ntnu.no

William Throndsen

Department of Interdisciplinary studies of cultureFaculty of Humanities

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.

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

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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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).



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

Relevant links outside academia Cooperation with Statnett

Irina Oleinikova

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and Technology Faculty of Architecture and Design

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)



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

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

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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.



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.)

Steven Boles

Department of Energy and Process EngineeringFaculty of Engineering

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 <u>LINK HERE</u>

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)



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



Contact information wenjun.lu@ntnu.no +47 41394838

Relevant links outside academia

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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

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

- 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

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



Contact information yin.shen@ntnu.no

Relevant links outside academia

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, Pl.

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.

Shen Yin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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 cyberphysical systems Automation Technology in Process Industries Expertise specific to this call:

Battery test and performance monitoring; reliability and safety evaluation.

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, Pl.

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



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

Relevant links outside academia Industry and research instructional collaboration

Arvind Sharma

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

Expertise

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

Relevant projects

Renewable energy, microgrid and cyber security, lab development



Contact information yiliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



Contact information xingheng.liu@ntnu.no +47 92980847

Relevant links outside academia Equinor, Sintef

Xingheng Liu

Department of Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.

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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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.



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.)

Steven Boles

Department of Energy and Process EngineeringFaculty of Engineering

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 <u>LINK HERE</u>

Expertise specific to this call:

Operando sensing/monitoring



Contact information wenjun.lu@ntnu.no +47 41394838

Relevant links outside academia

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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

Expertise

- Cold climate science and technology
- Field experiments (e.g., physical and mechanical characterization of ice)
- Arctic science and technology
- ice fracture
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- 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

- 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

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

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

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

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

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

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

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

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

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

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.

<u>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.</u>

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.

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



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

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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.



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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.

- 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



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

Relevant links outside academia Industry and research instructional collaboration

Arvind Sharma

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

Expertise

Renewable energy, Testing, technology development and assessment, technoeconomic 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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



Contact information yiliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.

- 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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



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

Federico Ustolin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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

- **-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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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)



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Relevant projects

4OCEANS
ClimateCultures
FuturePast

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Expertise specific to this call:

With radiocarbon dating and d13C analysis, we can trace fossil and biogenic contributions in the carbon cycle, in fuels, materials and waste products.

Relevant projects

4OCEANS ClimateCultures FuturePast

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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



Contact information sveinung.sagrov@ntnu.no +47 93096277

Relevant links outside academia Norsk Vann Norwegian Church Aid

Sveinung Sægrov

Department of Civil and Environmental EngineeringFaculty of Engineering

Expertise

Water engineering

Project management

Relevant projects

EU projects

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



Contact information hossein.farahmand@ntnu.no +47 73594445

Relevant links outside academia Both industry and public sector

Hossein Farahman

Department of Electrical Power EngineeringFaculty of Information Technology and Electrical Engineering

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

- 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.



Contact information wenjun.lu@ntnu.no +47 41394838

Relevant links outside academia

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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

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

- 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



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

Dong Trong Nguyen

Department of Marine Technology Faculty of Engineering

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.



Contact information sveinung.sagrov@ntnu.no +47 93096277

Relevant links outside academia Norsk Vann Norwegian Church Aid

Sveinung Sægrov

Department of Civil and Environmental Engineering Faculty of Engineering

Expertise

Water engineering

Project management

Relevant projects

EU projects

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



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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.

- 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



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information yiliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.

- 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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



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

Govert Valkenburg

Department of Interdisciplinary Studies of CultureFaculty of Humanities

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).



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

Relevant links outside academia Industry and research instructional collaboration

Arvind Sharma

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

Expertise

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

Relevant projects

Renewable energy, microgrid and cyber security, lab development



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and Technology Faculty of Architecture and Design

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



Contact information xu.lu@ntnu.no +4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

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.

Xu Lu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and exsitu 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 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



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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

- **-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)



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

Govert Valkenburg

Department of Interdisciplinary Studies of CultureFaculty of Humanities

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).



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

Nicola Paltrinieri

Department of Industrial Economics and Technology ManagementFaculty of Engineering

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

- 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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

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

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.



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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.

- 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



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

Anshuman Abhisek Mishra

Department of Architecture and Technology Faculty of Architecture and Design

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



Contact information xu.lu@ntnu.no +4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

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.

Xu Lu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and exsitu 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 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



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

Relevant links
outside academia
Cooperation with Statnett

Irina Oleinikova

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



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.

Basanta Raj Pokhrel

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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



Contact information

+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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

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

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.



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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



Contact information william.throndsen@ntnu.no

William Throndsen

Department of Interdisciplinary studies of culture Faculty of Humanities

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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and Technology Faculty of Architecture and Design

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



Contact information frank.mauseth@ntnu.no +4773594234

Relevant links outside academia

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

Frank Mauseth

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



Contact information dimosthenis.peftitsis@ntnu.no

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

Dimosthenis Peftitsis

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



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

Relevant links outside academia Cooperation with Statnett

Irina Oleinikova

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



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.

Basanta Raj Pokhrel

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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



Contact informationdimosthenis.peftitsis@ntnu.no

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

Dimosthenis Peftitsis

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



Contact information xingheng.liu@ntnu.no +47 92980847

Relevant links outside academia Equinor, Sintef

Xingheng Liu

Department of Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



Contact information yiliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



Contact information yin.shen@ntnu.no

Relevant links outside academia

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, Pl.

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.

Shen Yin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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 cyberphysical systems Automation Technology in Process Industries

Expertise specific to this call:

New methods in quantification and evaluation of resilience and sustainability

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.



Contact information frank.mauseth@ntnu.no +4773594234

Relevant links outside academia

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

Frank Mauseth

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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



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

Relevant links outside academia Multiple contacts in the

energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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



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

Relevant links outside academia Cooperation with Statnett

Irina Oleinikova

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



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

Relevant links outside academia Industry and research instructional collaboration

Arvind Sharma

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

Expertise

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

Relevant projects

Renewable energy, microgrid and cyber security, lab development



Contact information dimosthenis.peftitsis@ntnu.no

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

Dimosthenis Peftitsis

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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



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.

Sebastien Gros

Department of Engineering Cybernetics Faculty of Information Technology

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, datadriven 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:

Al tools, decision under uncertainty

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



Contact information xu.lu@ntnu.no +4792257159

Expertise to this specific call

Mechanical testing and characterization of metallic materials in hydrogen environment.

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.

Xu Lu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Hydrogen embrittlement in metallic materials:

- Multi-scale mechanical testing of metallic materials under in-situ and exsitu 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 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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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)



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Expertise specific to this call:

With radiocarbon dating and d13C analysis, we can trace fossil and biogenic contributions in the carbon cycle, in fuels, materials and waste products.

Relevant projects

4OCEANS ClimateCultures FuturePast



Contact information erin.bachynski@ntnu.no

Erin Bachynski-Polić

Department of Marine TechnologyFaculty of Engineering

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.



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information

+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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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 (Al), 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



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering Faculty of Engineering

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.



Contact information wenjun.lu@ntnu.no +47 41394838

Relevant links outside academia

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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

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



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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.



Contact informationdimosthenis.peftitsis@ntnu.no

Relevant links outside academia CERN, ABB, Hitachi Grids, RISE Sweden, Mitsubishi

electric, Markel Poland.

Dimosthenis Peftitsis

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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



Contact information william.throndsen@ntnu.no

William Throndsen

Department of Interdisciplinary studies of culture

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-topeer 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



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

Relevant links outside academia Industry and research instructional collaboration

Arvind Sharma

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

Expertise

Renewable energy, Testing, technology development and assessment, technoeconomic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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.



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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.



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and Technology Faculty of Architecture and Design

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 TechnologyFaculty of Architecture and Design

Contact information

francesco.goia@ntnu.no +4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.



Contact information william.throndsen@ntnu.no

William Throndsen

Department of Interdisciplinary studies of cultureFaculty of Humanities

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



Contact information

+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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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 (Al), 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



Contact information andreas.erbe@ntnu.no

Relevant links outside academia

+47 73594048

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

Andreas Erbe

Department of Materials Science and Engineering Faculty of Natural Science

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



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

Govert Valkenburg

Department of Interdisciplinary Studies of CultureFaculty of Humanities

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).



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

Relevant links
outside academia
Industry and research
instructional collaboration

Arvind Sharma

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

Expertise

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

Relevant projects

Renewable energy, microgrid and cyber security, lab development



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academiaindustry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

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**



Contact information astrid.dewijn@ntnu.no

Astrid S. de Wijn

Department of Mechanical and Industrial Engineering Faculty of Engineering

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.



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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 (Al), 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



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



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

Relevant links outside academia Industry and research instructional collaboration

Arvind Sharma

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

Expertise

Renewable energy, Testing, technology development and assessment, technoeconomic modelling

Relevant projects

Renewable energy, microgrid and cyber security, lab development



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information erin.bachynski@ntnu.no

Erin Bachynski-Polić

Department of Marine TechnologyFaculty of Engineering

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.

0.00



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information

+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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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 (Al), 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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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)



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Expertise specific to this call:

With radiocarbon dating and d13C analysis, we can trace fossil and biogenic contributions in the carbon cycle, in fuels, materials and waste products.

Relevant projects

4OCEANS ClimateCultures FuturePast

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



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.

Julius Wesche

Department of Interdisciplinary Studies of Culture Faculty of Humanities

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



Contact information bente.philippsen@ntnu.no +4792092496

Bente Philippsen

National Laboratory for Age Determination University Museum

Expertise

The National Laboratory for Age Determination provides research collaboration and services within the fields of radiocarbon dating, dendrochronology and stable isotope analysis. We provide chronologies to archaeologists and historians, reconstruct past life and environment, or study the life history of modern plants and animals. We use radiocarbon concentrations as proxies to measure the sustainability of different carboncontaining compounds, such as fuels. Our absolute chronologies from radiocarbon and dendrochronology link developments in climate, environment and culture, thus allowing us to disentagle causes and effects.

Expertise specific to this call:

With radiocarbon dating and d13C analysis, we can trace fossil and biogenic contributions in the carbon cycle, in fuels, materials and waste products.

Relevant projects

4OCEANS ClimateCultures FuturePast

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-CL5-2024-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.

<u>HORIZON-CL5-2024-D4-02-01: Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)</u>

<u>HORIZON-CL5-2024-D4-02-02:</u> Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment (Built4People Partnership)

<u>HORIZON-CL5-2024-D4-02-03: BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)</u>

<u>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)</u>

<u>HORIZON-CL5-2024-D4-02-05: Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts (Built4People Partnership)</u>

HORIZON-CL5-2024-D4-01-01: Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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



Contact information gearoid.lydon@ntnu.no

gearoid.lydon@ntnu.no +4796924439

Relevant links outside academia

HVAC system manufacturers and the construction industry.

Gearóid Lydon

Department of Architecture and TechnologyFaculty of Architecture and Design

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 TechnologyFaculty of Architecture and Design

Contact information

francesco.goia@ntnu.no +4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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 opensource 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.



Contact information william.throndsen@ntnu.no

William Throndsen

Department of Interdisciplinary studies of cultureFaculty of Humanities

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



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.

Andreas Erbe

Department of Materials Science and Engineering Faculty of Natural Science

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



Contact information +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.

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

mohammadreza.aghaei@ntnu.no 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



Contact information sveinung.sagrov@ntnu.no +47 93096277

Relevant links outside academia Norsk Vann Norwegian Church Aid

Sveinung Sægrov

Department of Civil and Environmental EngineeringFaculty of Engineering

Expertise

Water engineering

Project management

Relevant projects

EU projects

- BINGO
- TRUSTTECHNEAU
- CITYNET CARE-S
- CARE-W

Francesco Goia

Department of Architecture and TechnologyFaculty of Architecture and Design

Contact information

francesco.goia@ntnu.no +4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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.



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

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)



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.

Andreas Erbe

Department of Materials Science and Engineering Faculty of Natural Science

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



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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 EngineeringFaculty of Engineering

Contact information yin.shen@ntnu.no

Relevant links outside academia

Expertise

Fault diagnosis/prognosis and faulttolerance Reliability, safety, and security System and control theory Data-driven monitoring and optimization Machine learning and computer vision Applications on health diagnosis and cyberphysical 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, Pl.

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, Pl.

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



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



Contact information inger.andresen@ntnu.no

inger.andresen@ntnu.no +47 406 49 405

Relevant links outside academia Industry and public sector

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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)

Leonardo Montecchi

Department of Computer ScienceFaculty of Engineering

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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



Contact information casper.boks@ntnu.no

Casper Boks

Department of DesignFaculty of Architecture and Design

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" (HoIE-LIB) (funded by NTNU Sustainability"

ERA-NET LAC II - Design of Insect- and Insect-based Food Products



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

Xinlu Qiu

Department of NTNU Business School Faculty of Economics and Management

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



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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



Contact information sveinung.sagrov@ntnu.no +47 93096277

Relevant links outside academia Norsk Vann Norwegian Church Aid

Sveinung Sægrov

Department of Civil and Environmental EngineeringFaculty of Engineering

Expertise

Water engineering

Project management

Relevant projects

EU projects

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

Francesco Goia

Department of Architecture and TechnologyFaculty of Architecture and Design

Contact information

francesco.goia@ntnu.no +4745027437

Relevant expertise

Building science, building envelope technology, building monitoring and control



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

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)



Contact information

eleftherios.papachristos@ntnu.no +47 47707238

Eleftherios Papachristou

Department of Design Faculty of Architecture and Design

Expertise

- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and Al
- Interface Evaluation.

Relevant projects

rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)



Contact information

dimitrios.tzioutzios@ntnu.no

Relevant link outside academia

Local government organisations in Japan, Colombia and Greece

First responder associations in

Companies in the petrochemical and energy sector in Japan, Colombia and Norway

Private and public research institutes in Japan, Colombia, Greece and Norway

Dimitrios Tzioutzios

Department of Mechanical and Industrial Engineering

Expertise

- Disaster risk management
- · Natech (Natural hazardtriggered 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 costreduction of Hydrogen stations through riskbased, multidisciplinary approaches (European-Japanese consortium) [ongoing]



Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

Contact information leonardo.montecchi@ntnu.no

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)



Contact information pedro@ntnu.no

pedro@ntnu.no +47 951 56 944

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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 opensource 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.



Contact information william.throndsen@ntnu.no

William Throndsen

Department of Interdisciplinary studies of culture Faculty of Humanities

Expertise

10+ years studying smart energy technology (smart grids) such as smart metering, solar PV, EV and charging, prosumerism and peer-topeer 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



Contact information +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

Relevant projects

Intelligence.

- 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

Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering Faculty of Engineering

Expertise

mohammadreza.aghaei@ntnu.no 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.

- 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



Contact information xinlu.giu@ntnu.no +47 942 56 320

Xinlu Qiu

Department of NTNU Business School Faculty of Economics and Management

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

Specific expertise: 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.

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



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)

Mrudhula Koshy

Department of Architecture and PlanningFaculty of Architecture and Design

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



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

Anshuman Abhisek Mishra

Department of Architecture and TechnologyFaculty of Architecture and Design

Expertise

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



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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, Al tools, multi-agent systems, decision under uncertainty.



Contact information inger.andresen@ntnu.no +4740649405

Relevant links outside academia industry, public sector, NGOs

Inger Andresen

Department of Architecture and TechnologyFaculty of Architecture and Design

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

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 bidirectional solutions synergic with the grid for EV mass deployment (2ZERO Partnership)

<u>HORIZON-CL5-2024-D5-01-02: Integration and testing of next generation post-800V electric powertrains (2ZERO Partnership)</u>

HORIZON-CL5-2024-D5-01-04: Integrated flexible multipoint megawatt charging systems for electric truck mass deployment (2ZERO Partnership) (2024)

<u>HORIZON-CL5-2024-D5-01-06: New designs, shapes, functionalities of Light Commercial Vehicles (2ZERO Partnership)</u>

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.

<u>HORIZON-CL5-2024-D5-01-10: Towards a flying testbed for European leadership in</u> 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)

<u>HORIZON-CL5-2024-D5-01-14: Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)</u>

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)



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

Relevant links outside academia

Multiple contacts in the energy industry and software companies

Pedro Crespo del Granado

Department of Industrial Economics and Technology ManagementFaculty of Economics and Management

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.



Contact informationdimosthenis.peftitsis@ntnu.no

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

Dimosthenis Peftitsis

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



Contact information dimosthenis.peftitsis@ntnu.no

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

Relevant links

Dimosthenis Peftitsis

Department of Electric Power EngineeringFaculty of Information Technology and Electrical Engineering

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.



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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)



Contact information richard.hann@ntnu.no +4748020891

Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Richard Hann

Department of Engineering CyberneticsFaculty of Information Technology and Electrical Engineering

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



Contact information richard.hann@ntnu.no +4748020891

Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Richard Hann

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



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

Federico Ustolin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



Contact information richard.hann@ntnu.no +4748020891

Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Richard Hann

Department of Engineering CyberneticsFaculty of Information Technology and Electrical Engineering

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



Contact information richard.hann@ntnu.no +4748020891

Relevant links outside academia

- UBIQ Aerospace
- VTT Finland
- DLR Germany

Richard Hann

Department of Engineering CyberneticsFaculty of Information Technology and Electrical Engineering

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)



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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:

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)



Contact information wenjun.lu@ntnu.no +47 413 94 838

Relevant links outside academia

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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

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



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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:

Relevant projects

industries

• Sustainable Arctic and Coastal

Technology funded by RCN and

Green Ice Management funded

by VISTA scholar funding

· DigitalSealce funded by RCN

· Wisting field iceberg studies

funded by Equinor

HORIZON-CL5-2024-D5-01-14: Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT Partnership)



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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:

HORIZON-CL5-2024-D5-01-15: Advanced digitalisation and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT Partnership)



Contact information yin.shen@ntnu.no

Relevant links outside academia

Shen Yin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Fault diagnosis/prognosis and faulttolerance Reliability, safety, and security System and control theory Data-driven monitoring and optimization Machine learning and computer vision Applications on health diagnosis and cyberphysical systems Automation Technology in Process Industries Expertise specific to this call: Al-based data analysis; data

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, Pl.

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, Pl.

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



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

Wenjun Lu

Department of Civil and Environmental EngineeringFaculty of Engineering

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



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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:

HORIZON-CL5-2024-D5-01-18: Assessment of air pollutant emissions from low-carbon fuels in the heavy-duty, aviation, and maritime sectors



Contact information magnus.ronning@ntnu.no +4791897585

Magnus Rønningen

Department of Chemical EngineeringFaculty of Natural Sciences

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)



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.

Andreas Erbe

Department of Materials Science and EngineeringFaculty of Natural Science

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)

<u>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)</u>

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)

<u>HORIZON-CL5-2024-D6-01-04: Al for advanced and collective perception and decision making for CCAM applications (CCAM Partnership)</u>

<u>HORIZON-CL5-2024-D6-01-05:</u> Robust Knowledge and Know-How transfer for Key-Deployment Pathways and implementation of the EU-CEM (CCAM Partnership)

Multimodal transport, infrastructure and logistics.

<u>HORIZON-CL5-2024-D6-01-06: Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport</u>

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

<u>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</u>

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-CL5-2024-D6-01-01: Centralised, reliable, cyber-secure & upgradable invehicle electronic control architectures for CCAM connected to the cloud-edge continuum (CCAM Partnership)



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)

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

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)



Contact information vin.shen@ntnu.no

Relevant links outside academia

Shen Yin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

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

Fault diagnosis/prognosis and fault-

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, Pl.

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 datadriven 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)



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)

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

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)



Contact information eleftherios.papachristos@ntnu.no +47 477 07 238

Eleftherios Papachristou

Department of DesignFaculty of Architecture and Design

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)



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

Govert Valkenburg

Department of Interdisciplinary Studies of Culture Faculty of Humanities

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: Al for advanced and collective perception and decision making for CCAM applications (CCAM Partnership)



Contact information eleftherios.papachristos@ntnu.no +47 47707238

Eleftherios Papachristou

Department of DesignFaculty of Architecture and Design

Expertise

- Human-Centred Artificial Intelligence design
- Human-Computer Interaction
- Interaction design
- Conversational Interfaces,
- Value-centered AI
- Ethics/trust/transparency and Al
- Interface Evaluation.

Relevant projects

rurALLURE (EU H2020 CSA)

INTER-SOCIAL (EU INTERREG)

SERIES (EU FP7 CSA)

QALIBRA (EU FP6 CSA)



Contact information yin.shen@ntnu.no

Relevant links outside academia

Shen Yin

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Fault diagnosis/prognosis and faulttolerance Reliability, safety, and security System and control theory Data-driven monitoring and optimization Machine learning and computer vision Applications on health diagnosis and cyberphysical systems Automation Technology in Process Industries Expertise specific to this call:
 Data fusion;
 Al-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, Pl.

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 datadriven methods in the reliability of safety systems, funded by SUBPRO, PI.



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

Govert Valkenburg

Department of Interdisciplinary Studies of CultureFaculty of Humanities

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).



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.

Sebastien Gros

Department of Engineering CyberneticsFaculty of Information Technology

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, datadriven 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)



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

Govert Valkenburg

Department of Interdisciplinary Studies of Culture Faculty of Humanities

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



Contact information daniel.cantero@ntnu.no +4773594521

Daniel Cantero

Department of Structural EngineeringFaculty of Engineering

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



Contact information inge.hoff@ntnu.no +4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Inge Hoff

Department of Civil and Environmental EngineeringFaculty of Engineering

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.



Contact information daniel.cantero@ntnu.no +4773594521

Daniel Cantero

Department of Structural EngineeringFaculty of Engineering

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



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

Wenjun Lu

Department of Civil and Environmental Engineering Faculty of Engineering

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

- 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

HORIZON-CL5-2024-D6-01-09: Policies and governance shaping the future transport and mobility systems



Contact information
eleftherios.papachristos@ntnu.no
+47 47707238

Eleftherios Papachristou

Department of DesignFaculty of Architecture and Design

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)



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

Govert Valkenburg

Department of Interdisciplinary Studies of Culture Faculty of Humanities

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



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

Nicola Paltrinieri

Department of Industrial Economics and Technology ManagementFaculty of Engineering

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
- HylnHeat Hydrogen technologies for decarbonization of industrial heating processes
- H2Glass Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors



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)

Leonardo Montecchi

Department of Computer ScienceFaculty of Engineering

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)



Contact information yin.shen@ntnu.no

Relevant links DNV

outside academia

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, Pl.

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

Shen Yin

Department of Mechanical and Industrial Engineering Faculty of Engineering

Expertise

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

Expertise specific to this call:

•Risk analysis; resilience evaluation.

2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, Pl. 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 datadriven methods in the reliability of safety systems, funded by SUBPRO, PI.



Contact information viliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial Engineering Faculty of Engineering

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.

- 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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



Contact information xingheng.liu@ntnu.no +47 92980847

Relevant links outside academia Equinor, Sintef

Xingheng Liu

Department of Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



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

Dong Trong Nguyen

Department of Marine TechnologyFaculty of Engineering

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



Contact information inge.hoff@ntnu.no +4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Inge Hoff

Department of Civil and Environmental EngineeringFaculty of Engineering

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.



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

Nicola Paltrinieri

Department of Industrial Economics and Technology ManagementFaculty of Engineering

Expertise

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

Expertise specific to this call:

Safety and resilience

- 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
- HylnHeat Hydrogen technologies for decarbonization of industrial heating processes
- H2Glass Advancing hydrogen (H2) technologies and smart production systems to decarbonise the glass and aluminium sectors



Contact information leonardo.montecchi@ntnu.no

Relevant links outside academia

+47 4628 6498

ResilTech s.r.l. (Italy):

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

Leonardo Montecchi

Department of Computer Science

Faculty of Engineering

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)



Contact information yiliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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.

- 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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



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

Dimitrios Tzioutzios

Department of Mechanical and Industrial EngineeringFaculty of Engineering

Expertise

Disaster risk management
Natech (Natural hazardtriggered 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 costreduction of Hydrogen stations through riskbased,multidisciplinary approaches (European-Japanese consortium) [ongoing]



Contact information xingheng.liu@ntnu.no +47 92980847

Relevant links outside academia Equinor, Sintef

Xingheng Liu

Department of Department of Mechanical and Industrial EngineeringFaculty of Engineering

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



Contact information mrudhula.koshy@ntnu.no

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)

Mrudhula Koshy

Department of Architecture and PlanningFaculty of Architecture and Design

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

- 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



Contact information yiliu.liu@ntnu.no +4747441775

Yiliu Liu

Department of Mechanical and Industrial EngineeringFaculty of Engineering

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), coinvestigator 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: Conditionbased maintenance decisions and digital twin for subsea systems, funded by Norwegian Research Council



Contact information inge.hoff@ntnu.no +4793426463

Relevant links outside academia

Scandinavian road administrations, contractors, material producers, survey equipment producers,

Inge Hoff

Department of Civil and Environmental EngineeringFaculty of Engineering

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.



NTNU

KNOWLEDGE FOR A BETTER WORLD

PROPOSED BY

NTNU BRUSSELS OFFICE NTNU DIGITAL, NTNU ENERGY IE FACULTY

NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, IE FACULTY

PHOTOS

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DESIGN AND LAYOUT NTNU ENERGY NTNU GRAFISK SENTER