

Program overview

Tuesday June 7		Wednesday June 8		Thursday June 9		Friday June 10			
		Room R7	Room R5		Room R7	Room R5		Room R7	Room R5
	08:30	Opening, Plenary session 1		08:30	Plenary session 2		08:30	Plenary session 3	
	09:30	Coffee		09:15	Coffee		09:15	Coffee	
	10:00	Instrumentation	Neuroscience	09:45	Nanomaterials	Ultra-microscopy	09:45	Data Handling and Analysis	Cellular Imaging
	12:00	Lunch, Exhibition area		11:45	Lunch, Cafeteria		11:45	Lunch and poster prize award, Cafeteria	
	13:00	Company presentations		12:45	General Assembly		12:45	End of program	
	14:15	Coffee		13:30	Functional Materials	Correlative Microscopy	For a detailed scientific program, see page 12.		
	14:45	Structural Materials	Geology	15:00	Coffee				
	16:45-18:30	Poster session (page 24)		15:30	Functional Materials	Correlative Microscopy			
19:00-22:00	Welcome party, Registration, Popular talk*		19:00	Organ concert, Nidaros Cathedral		16:30-18:30			
				19:30	Conference dinner, Banksalen				

Tuesday
20:30
-21:00



***Popular talk: Arne Olsen, University of Oslo**
The early years of electron microscopy in Norway

Wednesday, lecture hall R7

08:30 Official opening, Randi Holmestad and Anne Borg



Plenary: Peter J. Peters, Maastricht University
Beauty and Benefits of cryo-EM for research on nano machines
Chair: Johannes van der Want

08:45

09:30 Coffee

Materials Science – Instrumentation

Chair: John Walmsley and Ragnhild Sæterli

10:00



Invited: Alice Bastos Fanta, DTU-Cen, Copenhagen
Application of Transmission Kikuchi Diffraction in SEM and
Some Sample Preparation Challenges

10:30 **Aleksander Mosberg, NTNU**

In-Situ Electrical Probing of Nanowires on Focused Ion Beam Patterned
Substrates

10:45 **Per Erik Vullum, SINTEF**

Electron Energy Loss Spectroscopy to determine electronic properties in
solid materials

11:00 **Magnus Nord, University of Glasgow**

Advanced imaging with pixelated STEM detectors: 3D structure

11:15 **Daniel Phifer, FEI Company**

Site-specific 35-minute TEM-lamella preparation by FIB-SEM

11:30 **Hana Tesařová, TESCAN ORSAY HOLDING, a.s.**

Advantages of In-situ Testing

11:45 **Espen Bøjesen, Aarhus University**

When Electron Microscopy is not Enough - Unravelling the Chemistry of
Nanoparticle Formation by In Situ Total X-ray Scattering

12:00 Lunch, Exhibition area

13:00 **Company presentations**

Short presentations in the following order: Gammadata Instrument,
NordicNano Solutions, Imina Technologies, CAMECA, iLab Solutions,
Nikon, Oxford Instruments, Rowaco, JEOL, Spectrum Instruments, EMSIS.

Wednesday, lecture hall R5

08:30 (Opening and plenary in R7)

09:30 Coffee

Life science – Neuroscience

Chair: Menno Witter

10:00



**Invited: Moritz Helmstaedter, Max Planck Institute for Brain
Research, Frankfurt**
Cerebral Cortex Connectomics

10:30 **Menno Witter, NTNU**

Functional Architecture of Spatial Circuits in the Brain

11:00 **Jonathan Whitlock, NTNU**

Action planning and action observation in rodent parietal cortex

11:30 **Emre Yaksi, NTNU**

Sensory computations in zebrafish brain

12:00 Lunch, Exhibition area



13:00 (Company presentations in R7)

Wednesday, lecture hall R7

14:15 Coffee

Materials Science – Structural Materials

Chair: Randi Holmestad and Yanjun Li

- 14:45**  **Invited: Stefan Zaefrfer**, *Max Planck, Düsseldorf*
Electron channelling contrast imaging (ECCI): an amazing tool for observations of crystal lattice defects in bulk samples
- 15:15** **Christian Oen Paulsen**, *NTNU*
Use of Digital Image Correlation on Local Deformations in Pearlitic Steel During in situ Tensile Testing in Scanning Electron Microscope
- 15:30** **Corneliu Sârbu**, *National Institute of Materials Physics, Romania*
Crystallography and Nanoscale Composition Analysis of the Surface Layer (the Case) in IN-718 Superalloy Submitted to Surface Carburization in Low-Temperature (LT) Gas Atmosphere
- 15:45**  **Invited: Kenji Matsuda**, *Toyama University*
The effect of additional elements on aging behavior in Al-Mg-Si/Ge alloys
- 16:15** **Eva Mørtzell**, *NTNU*
HAADF-STEM Analysis of Precipitates in Al-Mg-Si Alloys
- 16:30** **Emil Christiansen**, *NTNU*
Transmission Electron Microscopy of Precipitate Free Zones in Aluminium Alloys Subjected to Uniaxial Compression

16:45
-18:30 **Poster session, exhibition area** (poster list on page 24)

19:00 Organ Concert, Nidaros Cathedral

Wednesday, lecture hall R5

14:15 Coffee

Materials Science – Geology

Chair: Suzanne McEnroe and Nathan Church

- 14:45**  **Invited: Falko Langenhorst**, *Friedrich-Schiller-University Jena*
Quantitative TEM microanalyses of minerals: principles and applications
- 15:15** **Rene de Kloe**, *EDAX*
EBSD Analysis of Natural Materials – Fossils, Meteorites, and Rocks
- 15:30** **Bjørn Eske Sørensen**, *NTNU*
Advantages of Offline EBSD on Geological Samples
- 15:45** **Invited: Peter Robinson**, *Geological Survey of Norway*
Exchange Bias in Minerals Related to Chemical-magnetic Structures at the Subnanometer Scale
- 16:15** **Suzanne McEnroe**, *NTNU*
Quench nanostructures and a new view on self-reversed thermoremanent magnetization
- 16:30** **Nathan Church**, *NTNU*
Electron Holography of Magnetite-Ilmenite Intergrowths Suggests Role of Interface Strain on Remanence

16:45
-18:30 **Poster session, exhibition area** (poster list on page 24)

19:00 Organ Concert, Nidaros Cathedral

Thursday, lecture hall R7

08:30



Plenary: Paul Midgley, Cambridge University
Crystal Cartography: Orientation and Strain Mapping using Scanning Electron Diffraction
Chair: Ton van Helvoort

09:15 Coffee

Materials Science – Nanomaterials

Chair: Per Erik Vullum and Kay Gastinger

09:45



Invited: Stephan Hofmann, University of Cambridge
In-situ Electron Microscopy for Controlling Integrated Crystal Growth of Advanced Nanomaterials

10:15 **Jan Rusz, Uppsala University**

Towards measuring magnetism with atomic resolution in a transmission electron microscope

10:30 **Antoine Dalod, NTNU**

In situ hydrothermal synthesis of surface functionalized titania nanoparticles

10:45 **Reza Zamani, Lund University**

Interfaces in Heterostructured GaSb-InAs Nanowires

11:00 **Per Persson, Linköping University**

Expanding and tailoring the two-dimensional family of MXenes

11:15 **Robert Boyd, Linköping University**

A Plasma Based Method for Nanomaterial Synthesis; Highlighting Challenges of Characterising Complex Structures.

11:30 **Gurvinder Singh, NTNU**

Designing multimetallic electrocatalytic nanoparticles with controlled composition and morphology

12:00 Lunch, Cafeteria

12:45 **Scandem General Assembly**

Thursday, lecture hall R5

08:30 (Plenary in R7)

09:15 Coffee

Life Science – Ultramicroscopy

Chair: Bjørn Stokke and Magnus Lilledahl

09:45



Invited: Simon Scheuring, INSERM, Paris
High-Speed Atomic Force Microscopy: The dawn of dynamic structural biochemistry

10:15



Invited: Julian Moger, University of Exeter
Label-free Chemically Specific Imaging In-Planta with Stimulated Raman Scattering Microscopy

10:45 **Kesara Anamthawat-Jónsson, University of Iceland**

Lymegrass Hybridization – When European *Leymus arenarius* Meets Its American Relative *L. mollis*

11:00 **Sindre H. Bjørnøy, NTNU**

Raman Microspectroscopy Characterization of Calcium Phosphate Minerals Within an Alginate Hydrogel Network

11:15 **Varpu Marjomäki, University of Jyväskylä**

Site-specific Probes for Enteroviruses for detailed Imaging in Light and Electron microscopy

11:30 **Habib Baghirov, NTNU**

Poly(isohexyl cyanoacrylate) Nanoparticle Transport Across the Blood-Brain Barrier in a Melanoma Metastasis Model Using Focused Ultrasound



12:00 Lunch, Cafeteria

12:45 (General Assembly in R7)

Thursday, lecture hall R7

Materials Science – Functional Materials

Chair: Ton van Helvoort and Jostein Grepstad

- 13:30**  **Invited: Erik Folven, NTNU**
Probing tailored magnetic domain structures in nanomagnets using x-ray spectromicroscopy
- 14:00** **Thomas Thersleff, Uppsala University**
Magnetic measurements in the TEM using STEM-EMCD
- 14:15** **Julie Stene Nilsen, NTNU**
Characterization of Pd/Ge/Au contacts on GaAs Nanowires
- 14:30** **Magnus Garbrecht, Linköping University**
HRTEM Exploration and Development of Metal/Semiconductor Superlattice Thin Films
- 14:45** **Anette Eleonora Gunnæs, University of Oslo**
Study of Cu₂O/ZnO Heterojunction Interfaces at the Atomic Scale
- 15:00** Coffee
- 15:30** **Hannah Nerl, Trinity College Dublin**
Exciton and Plasmon Mapping at the Nanoscale
- 15:45** **Laura Bocher, Laboratoire de Physique des Solides, Paris**
Resolving the atomic and electronic structures of functional nanostructured oxides by advanced electron spectromicroscopy
- 16:00**  **Invited: Quentin Ramasse, SuperSTEM Laboratory**
High spatial and energy resolution STEM-EELS of energy harvesting materials



16:30
-18:30 **Lab visits (see page 7)**

19:30 Conference dinner, Banksalen

Thursday, lecture hall R5

Life Science – Correlative Microscopy

Chair: Johannes van der Want

- 13:30**  **Invited: Andreas Brech, Oslo University Hospital**
Cytokinesis, endosomal traffic and autophagy visualized by Correlative Light and Electron microscopy
- 14:00** **Oleg Shupliakov, Karolinska Institutet**
Actin-dependent mechanisms during synaptic vesicle fusion link exo- and endocytosis in synapses
- 14:30** **Marianne Beckwith, NTNU**
Intracellular Life in Nanoscale 3D: Correlative Imaging by Light Microscopy and FIB/SEM tomography
- 14:50** **Nina Berggaard, NTNU**
The Development and Microcircuitry of Parvalbumin Positive Interneurons in Layer II of the Rat Medial Entorhinal Cortex
- 15:10** Coffee
- 15:30**  **Invited: Jerome Swinny, University of Portsmouth**
Stress-induced Expression Plasticity of GABAAR subunits Within Serotonergic and Noradrenergic Brain Centers of the Mouse

16:30
-18:30 **Lab visits (see page 7)**

19:30 Conference dinner, Banksalen

Friday, lecture hall R7

08:30



Plenary: Sara Bals, EMAT – University of Antwerp
High Resolution Electron Tomography: Colouring Atoms in 3 Dimensions
Chair: Randi Holmestad

09:15 Coffee

Materials Science – Data Handling and Analysis

Chair: Ragnhild Sæterli and John Walmsley

09:45



Invited: Lewys Jones, University of Oxford
University Nano-scale strain measurements from high-precision ADF STEM

10:15 **Sigurd Wenner, NTNU**

Misfit of Coherent Precipitate Phases in Al Alloys Measured by Scanning Transmission Electron Microscopy

10:30 **Tomas Ostaševičius, University of Cambridge**

SAMFire – a smart adaptive fitting algorithm for multi-dimensional microscopy

10:45 **Jakob Spiegelberg, Uppsala University**

Robust and Fast Analysis of Hyperspectral Data using Geometric Extraction Methods

11:00 **Duncan Johnstone, University of Cambridge**

Crystallographic mapping in engineering alloys by scanning precession electron diffraction

11:15 **Jonas Sunde, NTNU**

Phase Mapping of 2xxx-Series Aluminium Alloys by Scanning Precession Electron Diffraction

11:45 Lunch and poster prize award, Cafeteria

12:45 End of program

Friday, lecture hall R5

08:30 (Plenary in R7)

09:15 Coffee

Life Science – Cellular Imaging

Chair: Trude Flo

09:45



Invited: Lucy Collinson, Francis Crick Institute, London
Moving towards a single microscope for 3D light microscopy and 3D electron microscopy of cells and tissues

10:15



Invited: Renaud Poincloux, CNRS, Toulouse
Podosomes: mechanosensory protrusive structures involved in macrophage 3D migration

10:45 **Alexandre Gidon, NTNU**

Mycobacterium avium interfering with phagosome maturation evades an antibacterial program in human primary macrophages

11:05 **Maria Baumgarten, Lund University**

Electron microscopy study of collagen VI host defense peptides in vivo

11:25 **Jopi J. W. Mikkonen, University of Eastern Finland**

The Lacunar-Canalicular Structure of Mandible Studied by Scanning Electron Microscopy

11:45 Lunch and poster prize award, Cafeteria

12:45 End of program

Poster session, 8th of June 16:45

Authors should be present at their posters from 16:45 to 17:30 for odd numbered posters, and from 17:45 to 18:30 for even-numbered posters.

- 1 FIB-TEM Characterization of SiGeSn Quantum Well Photodiodes**
Alessandro Benedetti, *University of Vigo, Spain*
- 2 The Carbon Nanotube Loss Spectrum Investigated at High Energy Resolution in Real and Momentum Space**
Fredrik S. Hage, *SuperSTEM Laboratory*
- 3 Processing AFM data of porous anodic alumina with varying degrees of structure regularity**
Ekaterina Muratova, *Saint-Petersburg Electrotechnical University*
- 4 Nanoannotator – Novel Image Analysis Method for Nanoparticle Size Analysis**
Minnamari Vippola, *Tampere University of Technology*
- 5 Analysis of Ni_xSi_y-Si Nanowires for Next Generation Electronics**
Markus Löffler, *Technische Universität Dresden*
- 6 On the Inside of a Philips EM 400T Transmission Electron Microscope**
Bjørn Gunnar Soleim, *NTNU*
- 7 Analysis at High Lateral Resolution of Ceramic and Refractory Materials with the CAMECA SXFIVE FE**
Ian Holton, *Acutance Scientific Ltd.*
- 8 ζ-factor Tilt Dependency for Improved Quantitative Microanalysis**
Andreas Garmannslund, *NTNU*
- 9 Polychromatic synchrotron radiation x-ray microscopy**
Ken Vidar Falch, *NTNU*
- 10 Compound Electrostatic-magnetic SEM Enables Unprecedented Contrast Filtering at Low Voltages**
Daniel Phifer, *FEI Company*
- 11 SEM and FIB trends – no easy systems**
Stefan Rosenberg, *NordicNano Solutions AB*
- 12 Effect of Sample Preparation on EBSD Quantification of Retained Austenite in Supermartensitic Stainless Steel**
Børge Sognnæs Andresen, *NTNU*
- 13 EBSD Characterization of Sigma Phase in SDSS by ROI Extraction and Optimization of Hough Parameters**
Kim Ronny Elstad, *NTNU*

- 14 Order in $\text{Fe}_{1-x}\text{Zr}_x$ thin amorphous films analysed by fluctuation electron microscopy**
Klaus Leifer, *Uppsala University*
- 15 Eu Modification of Al-Si Alloys Studied at the Atomic Scale**
Fredrik S. Hage, *SuperSTEM Laboratory*
- 16 Transmission Electron Microscopy Characterization of Hot-Pressed Silicon Carbide with Boron and Carbon Additives**
Tina Bergh, *NTNU*
- 17 Crystallization “in Situ” of Amorphous Films, Deposited with Laser Sputtering of Zr in Oxygen Atmosphere**
Aleksandr Bagmut, *Kharkiv Polytechnic Institute, Ukraine*
- 18 The relative density changes at phase transition in thin solid films according to electron microscopic data**
Ivan Bagmut, *Kharkiv Polytechnic Institute, Ukraine*
- 19 Advanced TEM Studies of High Efficiency Quantum Dot Intermediate Band Solar Cells**
Maryam Vatanparast, *NTNU*
- 20 Electron Microscopic Characterization of Thermally Sprayed Cr_3C_2 -37WC-18NiCoCrFe Coating**
Mari Honkanen, *Tampere University of Technology*
- 21 Characterization of $\text{BaTiO}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{SrTiO}_3(111)$ Thin Film Systems**
Theodor Secanell Holstad, *NTNU*
- 22 TEM spectroscopy on high efficiency abundant earth thin film solar cells**
Thomas Thersleff, *Uppsala University*
- 23 Chemical and Structural Investigation of Grain Boundaries in Y-Doped BaZrO_3**
Adrian Lervik, *University of Oslo*
- 24 Transmission electron microscopy characterization of Fe:ZnS**
Per Erik Vullum, *SINTEF*
- 25 Tracking Electronic Pathways in Energy Materials by Low Voltage Scanning Electron Microscopy**
Janet J. Bentzen, *Technical University of Denmark*
- 26 Detection of oxygen sub-lattice ordering in A-site deficient perovskites through monochromated core-loss EELS mapping**
Demie M. Kepaptsoglou, *SuperSTEM Laboratory*

- 27 Space charge layers in interfaces of BZY investigated by inline electron holography**
Tarjei Bondevik, *University of Oslo*
- 28 Study of Ga and N implanted ZnO Alloys at the Atomic Scale**
Mohammed Sharif, *University of Oslo*
- 29 Goat hairs from a Corded Ware Burial, Finland**
Krista Vajanto, *Aalto University*
- 30 From Microscopy to Micromagnetic Modeling of Oxy-Exsolved Magnetite Nanoparticles from Young Icelandic Basalts**
Geertje ter Maat, *NTNU*
- 31 Focused ion beam-transmission electron microscopy of extracellular stalks produced by iron-oxidizing bacteria**
Ingunn Hindenes Thorseth, *University of Bergen*
- 32 Co-localized AFM – optical hyperspectral imaging of amyloid A β 40 maturation**
Bjørn Torger Stokke, *NTNU*
- 33 Mucin MUC1 in human oral mucosal epithelium**
Arja Kullaa, *University of Eastern Finland*
- 34 Microenvironment and Ultrastructure of Cervical Carcinoma Xenografts**
Catherine Sem Wegner, *The Norwegian Radium Hospital*
- 35 Second Harmonic Generation Microscopy of the Immature Articular Cartilage**
Andreas Finnøy, *NTNU*
- 36 Luxury of Recent Past – Ethnographic Nettle Fabrics**
Jenni Suomela, *University of Helsinki*
- 37 Automated Polarization Second Harmonic Generation**
Elisabeth Romijn, *NTNU*
- 38 Development of parvalbumin-related microcircuitry in layer II of rat medial entorhinal cortex**
Nina Berggaard, *NTNU*