ECAPD 2024

European Conference on Applications of Polar Dielectrics

Realfagbygget
Norwegian University of Science
and Technology (NTNU)
Trondheim, Norway
16-19 June 2024

NTNU | Norwegian University of Science and Technology

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WELCOME!

Welcome to the 15th European Conference on Applications of Polar Dielectrics (ECAPD 2024).

Originally planned to be held in 2020, and then once more in 2021, we are delighted to finally host this conference at the Norwegian University of Science and Technology (NTNU) in the vibrant city of Trondheim.

ECAPD brings together researchers, academics, and industry professionals dedicated to advancing the field of polar dielectrics. With over 200 accepted abstracts, we have assembled a comprehensive program that covers a broad spectrum of topics, from novel material processing methods to advanced imaging techniques, and from machine learning analysis to application-targeted developments.

Each conference day will be kicked off by a plenary session, and we are honored that Darrell Schlom from Cornell University, Nicola Spaldin from ETH Zurich, and Jürgen Rödel from TU Darmstadt take on these tasks. They will share their latest research and insights into improper ferroelectricity, electrostatic happiness and dislocation-tuned functionality.

We have placed a strong emphasis on making ECAPD 2024 a valuable experience for students, providing them with opportunities to gain new knowledge and network with experts they have only known through papers. To facilitate this, we offer pre-conference tutorials on the synthesis and applications of ferroics. Additionally, participants can enhance their professional skills through training on scientific publishing and hands-on sessions with AFM/MFM measurement systems. We encourage all participants to engage with our young researchers during their talks, at their posters, during coffee breaks, or at the conference dinner.

Trondheim, with its rich history and beautiful landscape nestled between mountains and the fjord, offers a unique setting for our conference. Our social events and optional tours provide opportunities to experience the city's blend of historical heritage and vibrant outdoor life.

We look forward to welcoming you to Trondheim for what promises to be an engaging and productive conference. Join us to network with peers, share your latest research, and contribute to the future developments in the field of polar dielectrics.

Warm regards from 63° 26' 48.5772'' N.
The ECAPD 2024 Organizing Committee

ORGANISING TEAM

Dennis Meier
Professor (Onsager Fellow)
Department of Materials Science and Engineering, NTNU

Julian Walker
Associate Professor
Department of Materials Science and Engineering, NTNU

Mari-Ann Einarsrud
Professor
Department of Materials Science and Engineering, NTNU

Sverre Selbach
Professor
Department of Materials Science and Engineering, NTNU

Julia Glaum
Professor
Department of Materials Science and Engineering, NTNU

Thomas Tybell
Head of department, Professor
Department of Electronic Systems, NTNU

John Christian De Mello
Head of NTNU Nano, Professor
Department of Chemistry, NTNU

ECAPD 2024
European Conference on Applications of Polar Dielectrics

Who are we?

THE SPECIALIST FOR CHARACTERIZING PIEZOELECTRIC MATERIALS AND DEVICES FOR PRODUCTION AND RESEARCH

When others say it cannot be done, we go ahead and do it. With a combination of experience and a passion for innovation, we have been developing modular measurement systems for characterizing piezoelectric materials and designing integrated system solutions since 1995, always with the needs of our customers in mind.
Our goal: reliable tools, tailored precisely to the respective needs.

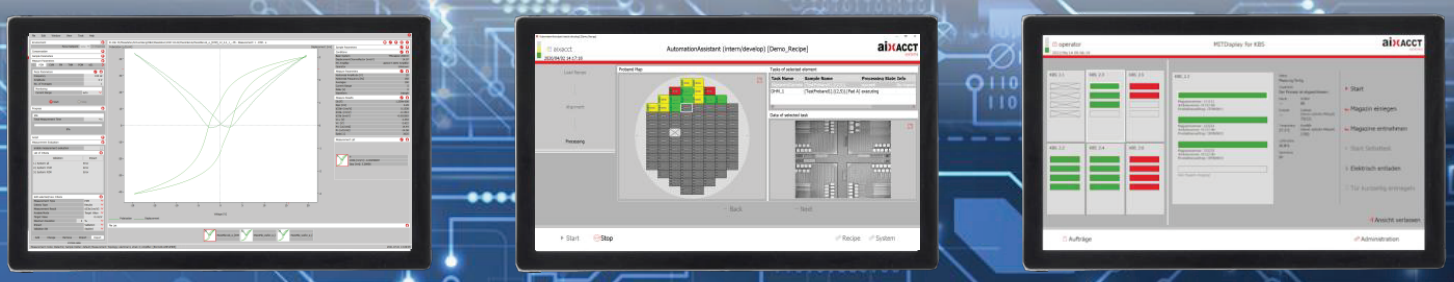
We offer our customers unique tools based on own modules and components from our partners that have proven themselves for years.

Combining system integration with automation

We have an experienced team of physicists, engineers, electricians and programmers that combines tried-and-tested modules and components with new developments like suitable sample fixtures. This lets us deliver guaranteed quality to customers like you in the shape of our highly reliable testing and production tools, with short run-up times.

Always up to date

We cooperate with specialists or consult with experts from your industry. You can rest assured that we will always take the latest expert insights into account when designing and producing our systems. Although we always tailor our tools precisely to customer needs, several systems have become established. Maybe one of them is the solution you have been looking for. If not, do not hesitate to get in touch!



Always the right software for your application

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High quality advanced oxide powders

Established Technology

Production process for a range of highquality oxide powder

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Ready for Scaling

1-4 tons/year capacity for current facilities

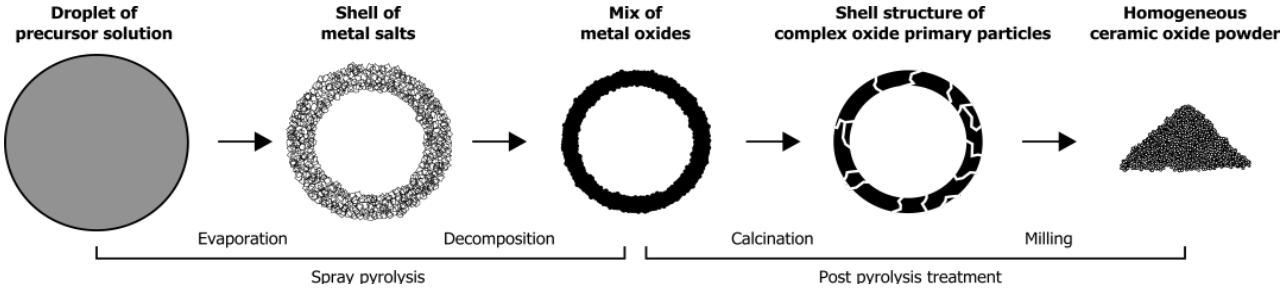
- 6-12 months lead time to industrial scale
- Modular production technology and set-up

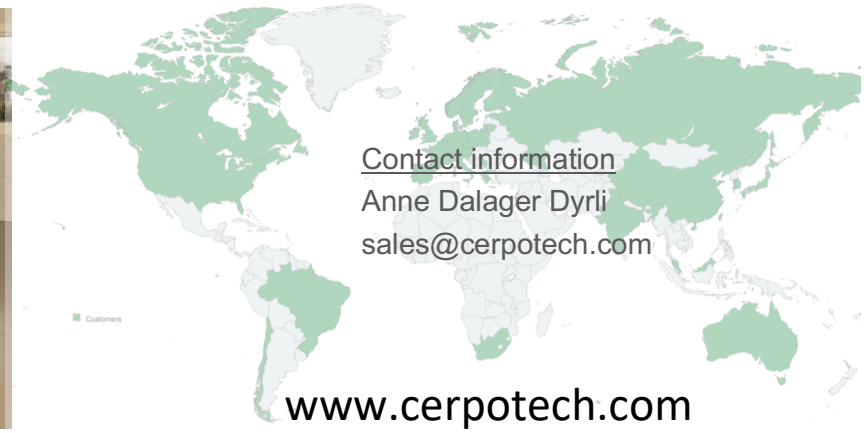
Market Development

Large customer base and ongoing qualification processes

- Focus on SOC, Lead free piezo, membranes, battery materials etc.
- More than 200 customers worldwide
- Price negotiation of raw material is important, we are small…

Cerpotech is specialized in the production of advanced ceramic powders for functional materials. The company was founded in Trondheim Norway in 2007 as a spin-off company from the Norwegian University of Science and Technology. With our unique production process, we synthesize high quality ceramic powders tailored to specific processing requirements and end-product functionalities of our customers including many different applications possible in 3D printing. The main applications are electro-ceramics and piezoceramics, solid oxides cell materials, membranes, catalysts, battery materials etc. Our production capabilities include customized batches for R&D purposes as well as ton-scale supply of powders for industrial production.





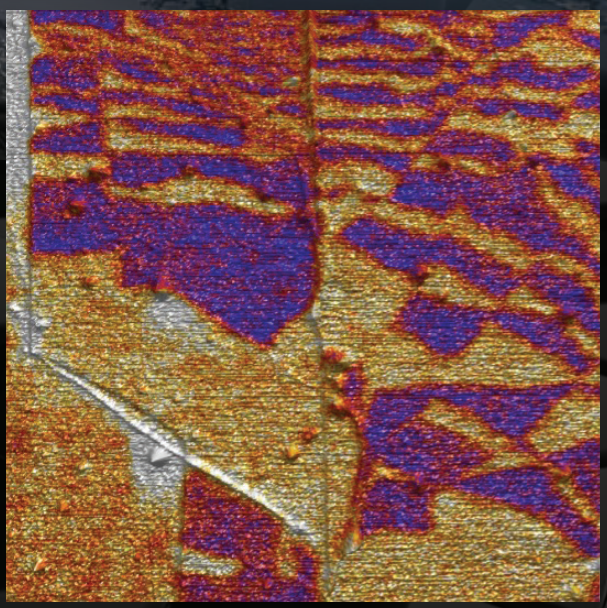
Contact information
Anne Dalager Dyrli
sales@cerpotech.com

www.cerpotech.com

nanosurf

Zoom into the Future

Nano Electrical Characterization



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- C-AFM
- MFM
- SMM
- SSRM

Visit the Nanosurf booth to discuss your AFM applications!

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Park SYSTEMS

LIVE DEMO Park FX40 automated AFM

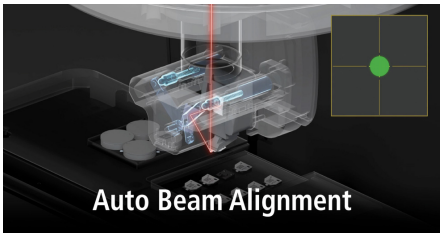
Stop by our booth to witness the latest advancements in AFM technology!

Park FX40

The Automatic AFM

Accelerate Your Research

Built-in intelligence automates all set up routines so that you can focus on your research.



OVERVIEW AGENDA
&
PLENARY SPEAKERS

OVERVIEW AGENDA

Sunday 16 June

13:00 - 17:30 Tutorial Sessions (Venue: R5)

Monday 17 June

08:30 Welcome by rector Tor Grande (Venue: R7)
08:45 Plenary session with Darrell Schlom (Venue: R7)
09:30 Coffee Break
09:45 Parallel 1:
- Venue **R3**: Advanced imaging of dielectric and ferroic systems I
- Venue **R5**: Ceramics processing I
- Venue **R7**: Applications of ferroelectrics, piezoelectrics, and related materials I
- Venue **R9**: Hafnium oxide-based systems I
- Venue **R8**: Free-standing films

10:45 Coffee Break
11:15 Parallel 2:
- Venue **R3**: Advanced structure and domain studies I
- Venue **R5**: Ceramics processing II
- Venue **R7**: Applications of ferroelectrics, piezoelectrics, and related materials II
- Venue **R9**: Hafnium oxide-based systems II
- Venue **R8**: Antiferroelectrics

12:15 Lunch
13:30 Parallel 3:
- Venue **R3**: Advanced structure and domain studies II - titanates
- Venue **R5**: Ceramics processing III
- Venue **R7**: Water-related phenomena in dielectrics
- Venue **R9**: Wurtzite-type ferroelectrics I
- Venue **R8**: Ferroelectric thin films and heterostructures I

14:45 Coffee Break
15:15 Parallel 4:
- Venue **R3**: Advanced imaging of dielectric and ferroic systems II
- Venue **R5**: Ceramics processing IV
- Venue **R7**: Domains and domain walls I
- Venue **R9**: Wurtzite-type ferroelectrics II
- Venue **R8**: Ferroelectric thin films and heterostructures II

16:30 End Academic Program Day 1

18:30 - 19:00 Organ Concert in the Nidaros Cathedral

Tuesday 18 June

08:45 Plenary session with Nicola Spaldin (Venue: R7)
09:30 Coffee Break
09:45 Parallel 5:
Venue **R3**: Advanced imaging of dielectric and ferroic systems III
Venue **R5**: Emergent phenomena in dielectrics and ferroics I
Venue **R7**: Catalytic effects
Venue **R9**: Multiferroics I
Venue **R8**: Ferroelectric thin films and heterostructures III
10:45 Coffee Break
11:15 Parallel 6:
Venue **R3**: Photo-induced effects and related phenomena I
Venue **R5**: Ceramics processing V
Venue **R7**: Domains and domain walls II
Venue **R9**: Emergent phenomena in dielectrics and ferroics II
Venue **R8**: Ferroelectric thin films and heterostructures IV
12:15 Lunch
13:30 Parallel 7:
Venue **R3**: Advanced structure and domain studies III
Venue **R5**: Ceramics processing VI
Venue **R7**: Domains and domain walls III
Venue **R9**: Multiferroics II
Venue **R8**: Point-defect-driven phenomena I
14:45 Coffee Break
15:15 Parallel 8:
Venue **R3**: Photo-induced effects and related phenomena II
Venue **R5**: Applications of ferroelectrics, piezoelectrics, and related materials III
Venue **R7**: Domains and domain walls IV
Venue **R9**: Multiferroics III
Venue **R8**: Point-defect-driven phenomena II
16:30 Poster Session
18:00 End Academic Program Day 2
19:30 Conference Dinner & Awards

Wednesday 19 June

08:45 Plenary session with Jürgen Rödel (Venue: R7)
09:30 Coffee Break
09:45 Parallel 9:
Venue **R3**: Ferroelectric thin films and heterostructures V
Venue **R5**: Ceramics processing VII
Venue **R7**: Applications of ferroelectrics, piezoelectrics, and related materials IV
Venue **R9**: Domains and domain walls V
Venue **R8**: Organic ferroelectrics, piezoelectrics, and related materials I
11:00 Coffee Break
11:15 Parallel 10:
Venue **R3**: Photo-induced effects and related phenomena III
Venue **R5**: Advanced structure and domain studies IV
Venue **R7**: Applications of ferroelectrics, piezoelectrics, and related materials V
Venue **R9**: Multiferroics IV
Venue **R8**: Organic ferroelectrics, piezoelectrics, and related materials II
12:15 Lunch
13:30 Parallel 11:
Venue **R3**: Emergent phenomena in dielectrics and ferroics III
Venue **R5**: Ceramics processing IX
Venue **R7**: Applications of ferroelectrics, piezoelectrics, and related materials VI
Venue **R9**: Ferroelectric thin films and heterostructures VI
Venue **R8**: Ceramics processing VIII
14:30 End ECAPD 2024

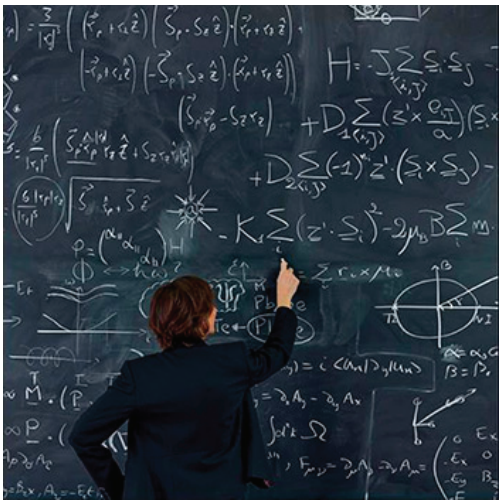
16:00-19:00 Post Conference Tours

PLENARY SPEAKERS

Darrell Schlom | Cornell University, USA

Darrell Schlom is the Herbert Fisk Johnson Professor of Industrial Chemistry in the Department of Materials Science and Engineering at Cornell University. After receiving a B.S. degree from Caltech, he did graduate work at Stanford University receiving an M.S. in Electrical Engineering and a Ph.D. in Materials Science and Engineering. He was then a post-doc at IBM's research lab in Zurich, Switzerland. He has received various awards including a Humboldt Research Award, the MRS Medal, and the IOCG Frank Prize. He has published over 600 papers and 8 patents, is a Fellow of the American Physical Society, the Materials Research Society, the American Vacuum Society, and is a member of the National Academy of Engineering

Nicola Spaldin | ETH Zurich, Switzerland



Nicola Spaldin is the Professor of Materials Theory at ETH Zurich. She is best known for developing the class of materials known as multiferroics, which combine simultaneous ferromagnetism and ferroelectricity, for which she received the 2017 L'Oréal-UNESCO For Women in Science award among other honors. She is a passionate science educator, director of her department's study program, and holder of the ETH Golden Owl Award for excellence in teaching. When not trying to make a room-temperature superconductor, she can be found playing her clarinet, or skiing or climbing in the Alps.

Jürgen Rödel | TU Darmstadt, Germany

Jürgen Rödel received a diploma in Materials Science from University of Erlangen-Nürnberg in 1983 and a Ph.D. from UC Berkeley in 1988 as well as a habilitation in Materials Engineering from Technische Universität Hamburg-Harburg (TUHH) in 1992. Since 1994 he has been working as professor at TU Darmstadt. He is also an honorary professor at USTB and currently a distinguished visiting professor at Tsinghua University (both Beijing) as well as specially appointed professor at Tokyo Institute of Technology, Japan. Jürgen Rödel is the author or coauthor of 315 refereed publications. Over the years his research covered sintering, mechanical properties, electrical reliability, lead-free piezoceramics and dislocation-tuned functionality. In Germany he received the highest awards by the Deutsche Forschungsgemeinschaft for young (Heintz-Maier-Leibnitz prize) and for senior (Leibniz-Prize) scientists and is member of the National Academy of Science and Technology. He also received the IEEE ferroelectrics recognition award and the Sosman award of the American Ceramic Society.

SOCIAL EVENTS
&
POST CONFERENCE TOURS

SOCIAL EVENTS

Organ Recital in Nidaros Cathedral

17. June, 18:30

This mini concert of the Steinmeyer organ in the northernmost medieval cathedral is a spectacular treat, not to be missed.

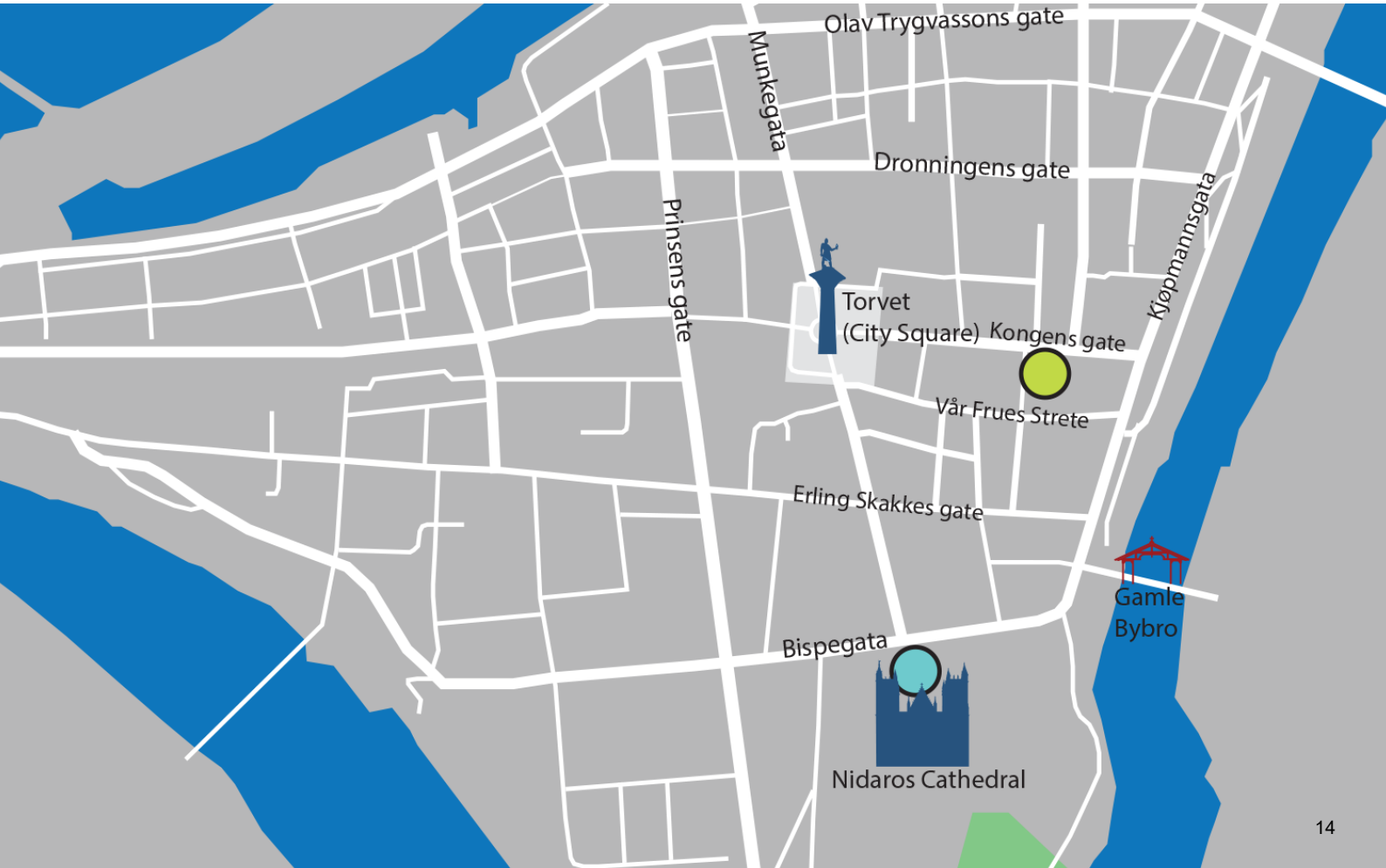
Use the north entrance (facing Mukegata), to enter the cathedral

Conference Dinner

18. June, 19:30

The conference dinner starts at 19:30 with an aperitif. After the dinner, there will be a DJ and additional drinks can be purchased.

Venue: Frimurerlogen
Street adress: Kongens Gate 3



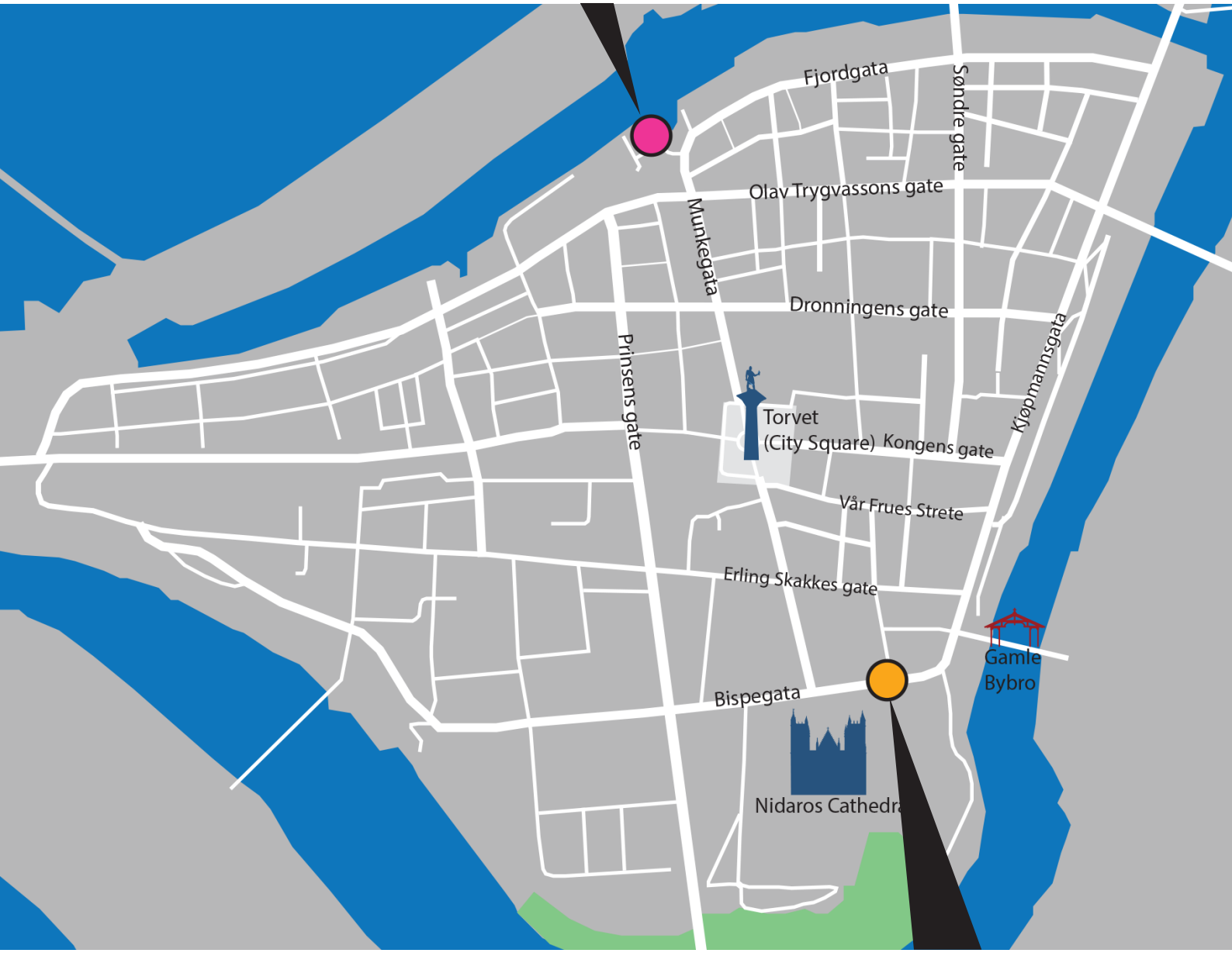
POST CONFERENCE TOURS

Trondheim by Boat

19. June 2024

Departure 1: 16:15 (Be there at 16:00)
Departure 2: 17:15 (Be there at 17:00)

Meeting point:
Munkegaten 66 (Ravnkloa)



Hike the Mountains of Bymarka

19. June, 16:30

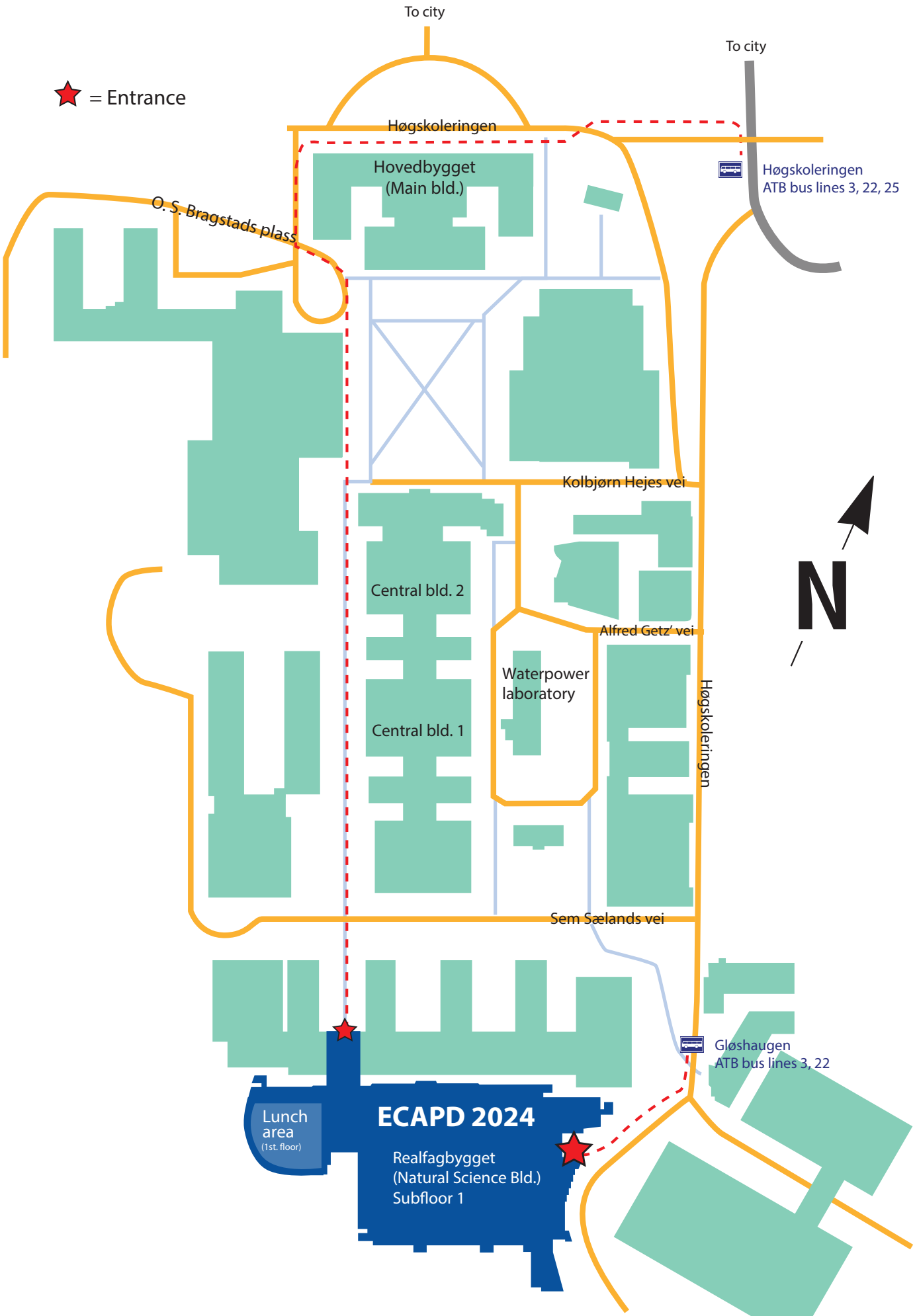
Meeting point:
Bus parking in Bispegata (street parking) alongside Nidaros Cathedral

MAPS, FLOORPLAN & TRANSPORTATION

TRONDHEIM CITY MAP

View map on Google

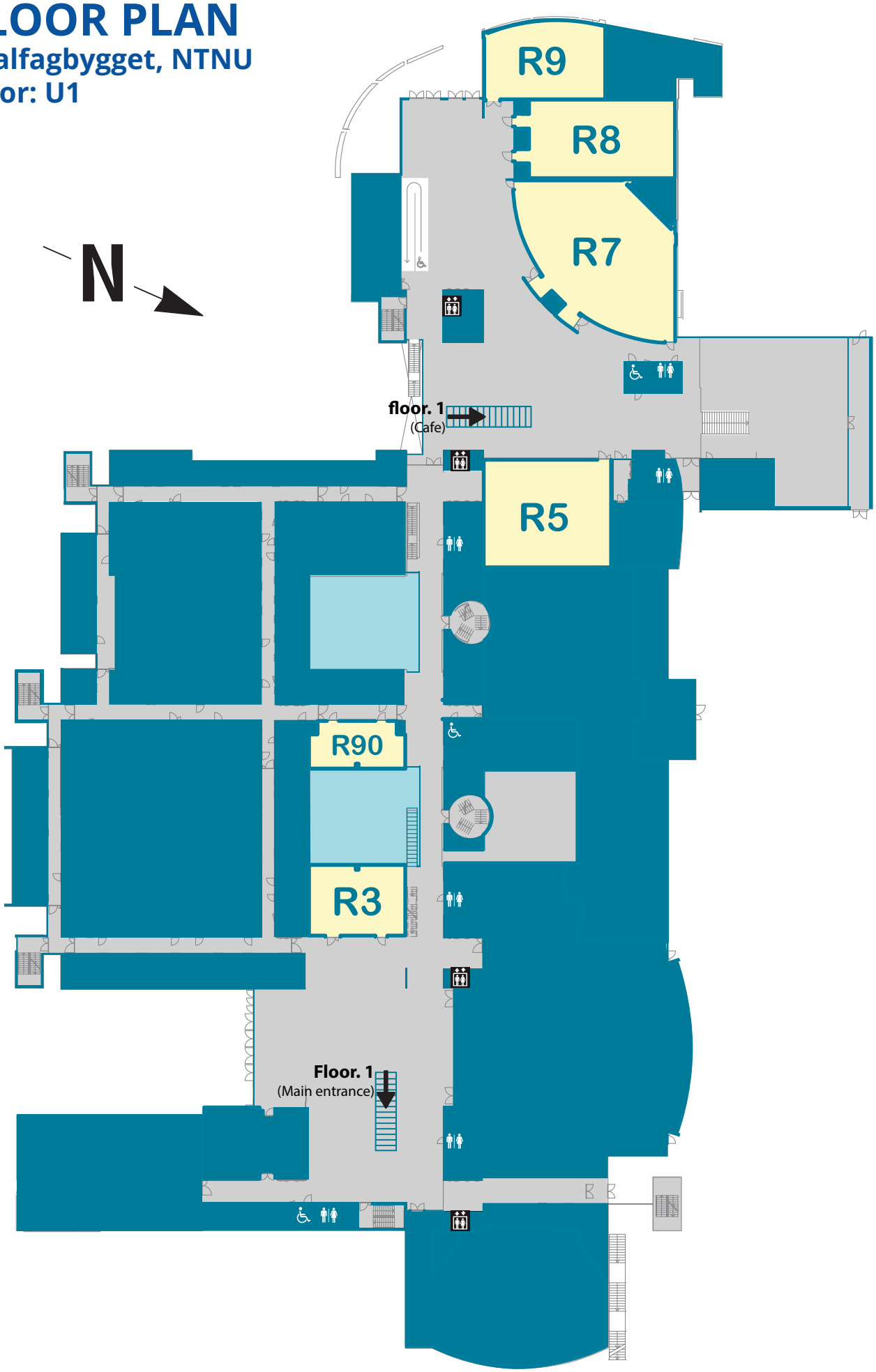
NTNU, CAMPUS GLØSHAUGEN



FLOOR PLAN

Realfagbygget, NTNU

Floor: U1



TRANSPORTATION

By bus:

Southbound AtB lines **3 (**direction “Lohove”) and **22** (direction “Vestlia via Othilienborg”) will take you to Gløshaugen Campus (NTNU).

Note! Ticket must be purchased pre boarding.

You can buy your ticket in more ways, but the text message service is probably the easiest way for visistors:

Text message (SMS):
Send “**VOKSEN**” to **2027** for a single ticket valid for 90 minutes.

See AtB website for more ways to buy a ticket: https://www.atb.no/en/plan-your-trip/

Bus stop closest to your hotel:

(Traveling to the conference venue)

Comfort Hotel Park: The closest bus stop is “Nidarosdomen”.
Walk 220 m. south on Prinsens gate. (Lines 3 & 22)

Quality Hotel Augustin: The Closest bus stop is “Prinsens gate P1”
Walk right when exiting your hotel and cross the street “Prinsens gate”
(Line 22)

Thon Hotel Nidaros: The closest bus stop is “Olav Trygvassons gate 2”.
Once outside your hotel, walk to Søndre gate and follow south to
Olav Trygvassons gate. Turn right and follow Olav Trygvassons gate
westward to the busstop. (Approx. 200m walking)

Walking to the conference venue

Directions are available in the conference map on the website/google.
(or just search for “Realfagbygget” on your preferred online map service.)

Walking time from **Comfort Hotel Park**: Approximately **27 min**.
Walking time from **Quality Hotel Augustin**: Approximately **32 min**.
Walking time from **Thon Hotel Nidaros**: Approximately **37 min**.

Bus from the airport to the conference venue

There is a shuttle (Værnesexpressen) bus leaving from the airport after every flight arrival.
"Scandic Lerkendal" is the nearest stop to the Conference venue (10 minute walk).

Bus to the airport from the conference venue

The bus shuttle will pick you up from the Conference Venue and drive you to the Airport on Wednesday, 19 June right after the conference finishes. The bus is leaving from the venue at **14:50**. Arrival to the Airport is at **15:25**. You need to buy bus ticket here:

https://www.en.vaernesekspressen.no/

DETAILED AGENDA

SUNDAY 16 JUNE

13:00–17:30

Venue: R5

Pre Conference Tutorials

13:00-13:45	Susan Trolier McKinstry – Ferroics and their applications
1345-14:30	Darrell Schlom – Synthesis of ferroic materials
14:30-15:00	break
15:00-15:45	Sandra Skjærvø – Scientific publishing
15:45-16:00	break
16:00-17:30	Nanosurf - Introduction to AFM/MFM
18:00	Welcome reception

MONDAY 17 JUNE

08:30–08:45
Venue: R7

Welcome by Rector Tor Grande

08:45–09:30
Venue: R7

Plenary session with Darrell Schlom

KEYNOTE: Stabilizing Improper Ferroelectricity in Thin Films Down to the Monolayer Limit

09:30–09:45

Coffee Break

09:45–10:45

Parallel 1

Venue: R3

TOPIC: Advanced imaging of dielectric and ferroic systems I
CHAIR: Raymond McQuaid

09:45 Probing the Emergent Internal Phases of Ferroelectric Domain Walls during Dynamics
INVITED SPEAKER: **Elizabeth C. Dickey**

10:15 Defect Induced Memristive Switching in Off-stoichiometric $SrTiO_3$ Revealed by Quantitative STEM
Changming Liu
Leibniz Institute for Crystal Growth

10:30 Characterization of Local Domain Structures in Ferroelectric Single Crystals Using 4D-STEM
Yining Xie
University of Warwick

Venue: R5

TOPIC: Ceramics processing I
CHAIR: Hana Uršič

09:45 Additive manufacturing of lead-free piezoelectric ceramics
INVITED SPEAKER: **Astri Bjørnetun Haugen**
Technical University of Denmark

10:15 Functional Properties of $(K_{0.5}Nas_{0.5})NbO_3$ (KNN) Piezoceramics by a Solid State Route Using Attrition Ball Milling
Lorena Pardo
Instituto de Ciencia de Materiales de Madrid (ICMM)

10:30 Compositional Engineering of Functional Properties in $(K,Na)NbO_3$-based Bioceramics
Caitlin Guzzo
Norwegian University of Science and Technology (NTNU)

Venue: R7

TOPIC: Applications of Ferroelectrics, Piezoelectrics, and Related Materials I
CHAIR: Sarah Guerin

09:45 Lead-free Ceramics in Ultrasonic Measurement Devices
INVITED SPEAKER: **Hans-Jürgen Schreiner**
Ceramtec GmbH

10:15 Evaluation of Lead-free Alternatives for the Replacement of PZT in Power Ultrasonic Applications
Vojtech Hruby
CTS Corporation

10:30 Core-shell Grain Structure and Dielectric Energy Storage Properties of BST-BNM Ceramics
Jianjiang Bian
Shanghai University

Venue: R9

TOPIC: Hafnium Oxide-based and Wurtzite-type ferroelectrics I
CHAIR: César Magén

09:45 Inversion and Cancellation of Piezoelectricity in $Hf_{0.5}Zr_{0.5}O_2$ Under Electrical Cycling
INVITED SPEAKER: **Catherine Dubourdieu**
Helmholtz-Zentrum Berlin

10:15 Interface Chemistry and Electronic Structure of $Hf_{0.5}Zr_{0.5}O_2/Al_2O_3$-based Ferroelectric Tunnel Junctions Studied by X-ray Photoelectron Spectroscopy
Wassim Hamouda
Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)

10:30 Impact of $ZrxHf_{1-x}O_2$ Thin Films Composition on Strain, Field-Induced Phase Transition, and Interfacial Thickness
Pramoda Vishnumurthy
NaMLab gGmbH

Venue: R8

TOPIC: Free-standing Films
CHAIR: Lane Martin

09:45 Synthesis and Properties of Single Domain $BiFeO_3$ Thin Films and Free-standing Membranes
INVITED SPEAKER: **Chang-Beom Eom**
University of Wisconsin-Madison

10:15 Switching Dynamics of Heteroepitaxial Free-standing Antiferroelectric Capacitors and Strain Effects on the Functional Properties
Umair Saeed
ICN2

10:30 Approach for Production of High-quality Free-standing $0.9Na_{0.5}Bi_{0.5}TiO_3$-$0.1Sr_{0.7}Bi_{0.2}TiO_3$ thick films by Water-based Tape-casting Method
Marija Dunce
Institute of Solid State Physics, University of Latvia

10:45–11:15 **Coffee Break**

11:15–12:15 **Parallel 2**

Venue: R3

TOPIC: Advanced Structure and Domain Studies I
CHAIR: Marco Deluca

11:15 High-Resolution X-ray Diffraction for Characterizing Domain Patterns in Ferroelectrics
INVITED SPEAKER: **Semën Gorfman**
Tel Aviv University

11:45 Resolving the origins of ferroelectricity in hexagonal barium titanate
Struan Simpson
University of Warwick

12:00 New insights from in situ X-ray diffraction during solid state synthesis: A focus on $BiFeO_3$
Jacob Jones
North Carolina State University

Venue: R5

TOPIC: Ceramics Processing II
CHAIR: Astri Bjørnetun Haugen

11:15 $Pb(Mg_{1/3}Nb_{2/3})O_3$-based Thick-film Elements Prepared by the Aerosol Deposition Method
INVITED SPEAKER: **Hana Uršič**
Jožef Stefan Institute

11:45 Lead-free $Ba(Zr,Ti)O_3$–$(Ba,Ca)TiO_3$ Thick Films Prepared by Aerosol Deposition
Soukaina Merselmiz
Jožef Stefan Institute

12:00 Effect of Cation Off-stoichiometry on Energy Harvesting Properties of High-performance $Pb(Mg_{1/3}Nb_{2/3})O_3$-$PbTiO_3$ Ceramics
Suhas Yadav
University of Oulu

Venue: R7

TOPIC: Applications of Ferroelectrics, Piezoelectrics, and Related Materials II
CHAIR: Hans-Juergen Schreiner

11:15 Piezoelectric Biomolecules for Lead Free, Reliable, Eco Friendly Electronics
INVITED SPEAKER: **Sarah Guerin**
University of Limerick

11:45 Lead-free KNNLT Piezoceramic Multilayer Actuators With Ni electrodes Cofired Under Low Oxygen Partial Pressure
Mohamad Wael Alkanj
Ernst-Abbe-Hochschule Jena

12:00 Search for an MPB in Solid Solutions of the Tetragonal Tungsten Bronzes $Ba_4Na_2Nb_{10}O_{30}$ and $Ba_4Li_2Nb_{10}O_{30}$
Nora Statle Løndal
Norwegian University of Science and Technology

Venue: R9

TOPIC: Hafnium Oxide-based and Wurtzite-type Ferroelectrics II
CHAIR: Catherine Dubourdieu

11:15 Electrode-free Epitaxial $Hf_{1-x}Zr_xO_2$ Films
INVITED SPEAKER: **César Magén**
Instituto de Nanociencia y Materiales de Aragón (CSIC-Universidad de Zaragoza)

11:45 Memristive Devices Based on Conductive Domain Walls in AlScN
Simon Fichtner
Kiel University

12:00 Ferroelectricity in Undoped AlN: The Impact of Sc Reduction in Al(Sc)N/GaN Heterostructures
Georg Schönweger
Kiel University

Venue: R8

TOPIC: Antiferroelectrics
CHAIR: Chang-Beom Eom

11:15 Antiferroelectric Thin Films – The Material You Didn't Know You Needed
INVITED SPEAKER: **Lane Martin**
Rice University

11:45 The Antiferroelectric Wizard
Elena Buixaderas
Institute of Physics, Czech Academy of Sciences

12:00 PLZT: New Tricks for Old Dogs
Cosme Milesi-Brault
Laboratoire SPMS - CentraleSupélec

12:15–13:15 **Lunch**

13:15–14:45 **Parallel 3**

Venue: R3

TOPIC: Advanced structure and domain studies II
CHAIR: Semën Gorfman

13:30 Polarization Decorrelation Regions in homovalent and heterovalent $BaTiO_3$ solid solutions
INVITED SPEAKER: **Marco Deluca**
Silicon Austria Labs GmbH

14:00 Tailoring Piezoelectric and Relaxor Behavior in Lead-Free $BaTiO_3$ Ceramics via Combined Homovalent and Heterovalent Substitutions
Venkata Raveendra Nallagatla
Silicon Austria Labs

14:15 Piezoresponse Force Microscopy Study of Ferroelectric-Relaxor Transition in $Na_{0.5}Bi_{0.5}TiO_3$ Ceramics
Vladimir Shvartsman
University Duisburg-Essen

14:30 Ferroelastic Strain Ordering in $CaTiO_3$ Measured by X-ray Linear Dichroism Photoemission Electron Microscopy
Grégoire Magagnin
Institut des Nanotechnologies de Lyon

Venue: R5

TOPIC: Ceramics processing III
CHAIR: Chris Bowen

13:30 Novel Processing Methods for Integration of Piezoelectric Oxides on Glass
INVITED SPEAKER: **Sebastjan Glinsek**
Luxembourg Institute of Science and Technology

14:00 Growth of piezoceramic films on glass via flash lamp annealing
Juliette Cardoletti
Luxembourg Institute of Science and Technology (LIST)

14:15 Bulk ceramics and screen-printed films of $Pb(Fe_{0.5}Nb_{0.5})O_3$–$BiFeO_3$ for energy storage applications
Ivana Goričan
Electronic Ceramics Department, Jožef Stefan Institute

Venue: R7

TOPIC: Water-related phenomena in dielectrics
CHAIR: Neus Domingo Marimon

13:30 Probing the interaction between ferroelectric surfaces and adsorbed water
INVITED SPEAKER: **Patrycja Paruch**
DQMP, University of Geneva

14:00 Piezoelectrics in Advancing Water Treatment: Exploring Self-Cleaning Potential of BCTZ Membranes in Preliminary Evaluation
Pietro Galizia
CNR-ISSMC

14:15 Pyroelectric materials as catalysts in advanced oxidation processes for water treatment
Hannes Engelhardt
Fraunhofer IKTS

14:30 Evaluating Behavior of Piezoelectric Materials under Mechanical Stress in Liquid Media Using Their Electrokinetic Responses
Mohsen Sadeqi-Moqadam
NTNU

Venue: R9

TOPIC: Hafnium oxide-based and Wurtzite-type ferroelectrics III
CHAIR: Andrew Rappe

13:30 Domain Dynamics and Resistive Switching in Ferroelectric $Al_{1-x}Sc_xN$ Thin Film Capacitors
INVITED SPEAKER: **Alexei Gruverman**
UNL

14:00 Oxygen-Doping for Reduced Leakage Current in Ferroelectric $Al_{0.73}Sc_{0.27}N$
Md Redwanul Islam
Kiel University

14:15 Ferroelectric domain structures in AlScN thin films
Niklas Wolff
Kiel University

Venue: R8

TOPIC: Ferroelectric thin films and heterostructures I
CHAIR: Morgan Trassin

13:30 XPCS studies of domain dynamics in ferroelectric thin films and superlattices
INVITED SPEAKER: **Matthew Dawber**
Stony Brook University

14:00 Controlling and investigating domain structures in $PbTiO_3$ ferroelectric thin films and heterostructures
Ludovica Tovaglieri
University of Geneva

14:15 Curled polarization nanodomains in ($BaTiO_3$/$SrTiO_3$) epitaxial superlattices on silicon
Valentin Hevelke
Helmholtz-Zentrum Berlin für Materialien und Energie

14:30 First Principles Investigation of $SrTiO_3$-$RENiO_3$ Interfaces
Alexander Lione
Durham University

14:45–15:15 **Coffee Break**

15:15–16:30 **Parallel 4**

Venue: R3

TOPIC: Advanced imaging of dielectric and ferroic systems II
CHAIR: Shelly Conroy

15:15 Unveiling Nanoscale Phenomena of Polar States in Ferroelectric Nanostructures by 4D STEM and EELS
INVITED SPEAKER: **Xiaoqing Pan**
UC Irvine

15:45 Non-Destructive Tomographic Nanoscale Imaging of Ferroelectric Domain Walls
Jiali He
Norwegian University of Science and Technology

16:00 A Field Polarized by AI: How to Navigate the Conclusions and Delusions?
Joshua Agar
Drexel University

Venue: R5

TOPIC: Ceramics processing IV
CHAIR: Sebastjan Glinsek

15:15 Processing of Smart Porous Electro-ceramic Transducers (ProSPECT)
INVITED SPEAKER: **Chris Bowen**
University of Bath

15:45 Analysis of local vs. macroscopic properties of porous $BaTiO_3$ ceramics using 3D reconstructed ceramic microstructures
Liliana Mitoseriu
University Alexandru Ioan Cuza from Iasi

16:00 Electrical properties of porous PZT films
Alexander Sigov
MIREA - Russian Technological University

16:15 Tailoring the macroscopic and local electrical conductivity of lead-free $BiFeO_3$-$BaTiO_3$ piezoceramics
Antonio Iacomini
Jožef Stefan Institute

Venue: R7

TOPIC: Domains and domain walls I
CHAIR: Donald Evans

15:15 Nanoscale ferroelastic writing in a ferroelectric polymer
INVITED SPEAKER: **Kathrin Doerr**
MLU Halle

15:45 Surface tension effects in ferroelectric nanorods
Svitlana Kondovych
IFW Dresden

16:00 Local measurements of electrical and thermal transport properties of conducting domain walls in ferroelectrics
Raymond McQuaid
Queen's University Belfast

Venue: R9

TOPIC: Hafnium oxide-based and Wurtzite-type ferroelectrics IV
CHAIR: Alexei Gruverman

15:15 Unraveling Domain Wall Mechanics in Emerging Ferroelectrics: Fluorites and Wurtzites
INVITED SPEAKER: **Andrew Rappe**
University Of Pennsylvania

15:45 Nontrivial Switching Pathways in Wurtzite Ferroelectrics
Geoff Brennecka
Colorado School of Mines

16:00 Switching in Wurtzite Ferroelectrics
Susan Trolier-McKinstry
Penn State University

Venue: R8

TOPIC: Ferroelectric thin films and heterostructures II
CHAIR: Matthew Dawber

15:15 Remote control of polarization states in epitaxial thin films
INVITED SPEAKER: **Morgan Trassin**
ETH Zurich

15:45 Nanoscale electrostatic control in ferroelectric thin films through lattice chemistry
Ipek Efe
ETH Zürich

16:00 Phase-Field Study of Nanocavity-Assisted Mechanical Switching in $PbTiO_3$ Thin Films
Kevin Alhada--Lahbabi
INSA LYON

16:15 Ferroelectric epitaxial ZrO_2 thin films
José Silva
University of Minho

18:30–19:00 **Organ Concert in the Nidaros Cathedral**

TUESDAY 18 JUNE

08:45–09:30 **Plenary session with Nicola Spaldin**

Venue: R7 KEYNOTE: In Search of Electrostatic Happiness

09:30–09:45 **Coffee Break**

09:45–10:45 **Parallel 5**

Venue: R3

TOPIC: Advanced imaging of dielectric and ferroic systems III
CHAIR: Marta D. Rossell

09:45 Probing the Emergent Internal Phases of Ferroelectric Domain Walls During Dynamics
INVITED SPEAKER: **Shelly Conroy**
Imperial College London

10:15 Ferroelectric Domain Observations With Helium Ion Microscopy
Dong-Jik Kim
Helmholtz-Zentrum Berlin GmbH

10:30 Going head-to-head with domains: 3DXRD for discovering domain structure in hybrid improper ferroelectrics
Evie Ladbrook
University of Warwick

Venue: R5

TOPIC: Emergent phenomena in dielectrics and ferroics I
CHAIR: Lynette Keeney

09:45 Alterferroics
INVITED SPEAKER: **Sinead Griffin**

10:15 Emergent Piezoelectric Effect at Polar Interfaces
Marin Alexe
University of Warwick

10:30 Flexoelectricity and surface ferroelectricity in water ice
Xin Wen
Institut Català de Nanociència i Nanotecnologia (ICN2)

Venue: R7

TOPIC: Catalytic effects
CHAIR: Patrycja Paruch

09:45 $BiFeO_3$-based nanoparticles as efficient ferrocatalysts
INVITED SPEAKER: **Brahim Dkhil**
Université Paris-Saclay, CentraleSupélec

10:15 Contribution of Piezoelectricity to $BaTiO_3$ Nanoparticles Catalytic Activity in the Decomposition of Organic Pollutants
Alain Pignolet
INRS - Institut National de la Recherche Scientifique

10:30 Epitaxial Strontium Germanate on Silicon: a New System for Photocatalysis?
Jiri Hlinka
FZU - Czech Academy of Sciences

Venue: R9

TOPIC: Multiferroics I
CHAIR: Vincent Garcia

09:45 Multiferroicity in the Flatland
INVITED SPEAKER: **Silvia Picozzi**
Consiglio Nazionale delle Ricerche CNR-SPIN

10:15 Topology Controls Magnetoelectric Switching in Multiferroics
Sergey Artyukhin
Italian Institute of Technology

10:30 Single Phase Multiferroic and Magnetoelectric Properties of Pb(Zr,Ti)O_3/ Pb($Fe_{0,5}Nb_{0,50}$) and Co-doped Layer-structured Aurivillius Ceramics
José Antonio Eiras
Federal University of São Carlos

Venue: R8

Ferroelectric Thin Films and Heterostructures III
CHAIR: Jinxing Zhang

09:45 Quantum Spin Liquid Behavior in Improper Ferroelectric $TbInO_3$ Films
INVITED SPEAKER: **Johanna Nordlander**
Paul Drude Institute for Solid State Electronics

10:15 Investigating Structure, Chemistry, and Electronic properties in Ultrathin $BaTiO_3$ Films Through Advanced Spectroscopy Techniques
Sara Gonzalez
CNRS - INL

10:30 Reinvestigating Ferroelectric Instabilities in Orthorhombic Perovskite Films From First Principles
Cameron Scott
Durham University

10:45–11:15 **Coffee Break**

11:15–12:15 **Parallel 6**

Venue: R3

TOPIC: Photo-induced effects and related phenomena I
CHAIR: Marin Alexe

11:15 Polar (or Polarized) Materials Under Light
INVITED SPEAKER: **Gustau Catalan**
ICREA and ICN2

11:45 Reversible Laser-induced Phase Transition and Polarization Control in a Strained Ferroelectric Thin Film
Le Phuong Hoang
European XFEL

12:00 Temperature-dependent Electro-mechanical Properties of Photoferroelectric $BaTi_{1-x}Sn_xO_3$ ($0 \leq x \leq 0.15$)
Viktoria Kraft
Friedrich-Alexander-Universität Erlangen-Nürnberg

Venue: R5

TOPIC: Ceramics Processing V
CHAIR: Hamideh Khanbareh

11:15 Implementation of Low Temperature Processing of Lead-free Piezoelectric Ceramics for Energy Harvesting: Strategies and Challenges
INVITED SPEAKER: **Catherine Elissalde**
ICMCB/CNRS/UniversityBordeaux

11:45 Tuning Pb Content in Chemical Solution Processed $PbZrO_3$ Thin Films
Nazanin Bassiri-Gharb
G.W. Woodruff School of Mechanical Engineering, Georgia Insitute of Technology

12:00 Flexible Hybrid Nanogenerator Integrated with Barium Titanate/Zinc Oxide for Enhancement Energy Harvesting Applications
Vartika Khandelwal
Central University of Haryana, Haryana

Venue: R7

TOPIC: Domains and domain walls II
CHAIR: Mael Guennou

11:15 Ferroelectric domain wall dynamics
INVITED SPEAKER: **Jonathan Spanier**
Drexel University

11:45 Electric Field-driven Statistical Correlations During the Stochastic Domain Structure
Yuri Genenko
TU Darmstadt

12:00 Effect of the Initial Disorder on the Stochastic Kinetics of Domain Formation in Uniaxial Ferroelectrics
Olga Mazur
Technical University of Liberec

Venue: R9

TOPIC: Emergent phenomena in dielectrics and ferroics II
CHAIR: Eric Langenberg

11:15 Transient Polarization and Magnetization Induced by a Strong THz Pumping of Soft Phonon in $KTaO_3$
INVITED SPEAKER: **Stanislav Kamba**
Institute of Physics of the Czech Academy of Sciences

11:45 Dielectric Response of Li- and Mn-doped Potassium Tantalate
INVITED SPEAKER: **Oleksandr Tkach**
University of Aveiro

12:00 Monitoring Structural Changes in Hardened Alkaline Niobate Ferroelectrics by Solid-State NMR Spectroscopy
Millena Logrado
Technische Universität Darmstadt

Venue: R8

TOPIC: Ferroelectric thin films and heterostructures IV
CHAIR: Johanna Nordlander

11:15 Magnetoelectric Phase Transition Driven by Interfacial-engineered Dzyaloshinskii-Moriya Interaction
INVITED SPEAKER: **Jinxing Zhang**
Beijing Normal University

11:45 Evidence of Ferroelectricity in Epitaxial Tungsten Trioxide Thin Films
Nives Strkalj
Institute of Physics, Zagreb

12:00 Insights Into the Growth of Coherent Ag(Nb,Ta)O_3 Thin Films
Nick Shepelin
Paul Scherrer Institut

12:15–13:30 **Lunch**

13:30–14:45 **Parallel 7**

Venue: R3

TOPIC: Advanced structure and domain studies III
CHAIR: Ola Grendal

13:30 Mapping and Control of Polar Domains With In-situ Single Crystal Diffraction of Synchrotron Light
INVITED SPEAKER: **Dmitry Chernyshov**
Swiss-Norwegian BeamLines at the ESRF

14:00 In-situ XRD Observation of Crystal Structure Under an Electric Field in (100)/(001)-oriented Pb($Zr_{0.35}$, $Ti_{0.65}$)O_3 Films
Miki Nakahata
Tokyo Institute of Technology

14:15 Surface Polarization Profile of Ferroelectric Thin Films Probed by X-Ray Standing Waves and Photoelectron Spectroscopy
Giuseppe Mercurio
European XFEL

14:30 From Perovskites to 2D Heterostructures: A Comprehensive Look at Ferroelectric Materials Using Scanning Probe Microscopy
Alexander Klasen
Park Systems Europe GmbH

Venue: R5

TOPIC: Ceramics processing VI
CHAIR: Catherine Elissalde

13:30 Functionally Graded Piezoelectric Composites for Biological Applications
INVITED SPEAKER: **Hamideh Khanbareh**
University of Bath

14:00 Optimization Challenges of KNN-based Piezo Ceramics: Temperature Stability of Strain, Sintering Temperature and Scalable Processability
Paula Huth
PI Ceramic

14:15 Growth and electrical properties of a (K, Na)NbO_3-based single crystals by the Bridgman-Stockbarger method
Thissiana Da Cunha Fernandes
Federal University of São Paulo (UNIFESP)

14:30 What is the Size of a Cation Vacancy in Tetragonal Tungsten Bronzes?
Caren Regine Zeiger
NTNU

Venue: R7

TOPIC: Domains and domain walls III
CHAIR: Kathrin Doerr

13:30 Complex Ferroelectric Textures: Insights from Three-Dimensional Two-Photon Microscopy Supported by Machine Learning
INVITED SPEAKER: **Salia Cherifi-Hertel**
CNRS and Strasbourg University

14:00 Influence of Domain Structures on Thermal Conductivity in Ferroelectric and Ferroelastic Materials
Nassima Radouane
CNRS

14:15 Strain Gradient Driven Conductivity in Ferroelectric Mott Insulator GaV_4S_8
Donald Evans
University of Warwick

14:30 Electro-thermo-mechanical Characterisation of Ferroelectric Polymer-based Nanocomposites for Microwave Field Induced Microscopic Strain Tailoring
Hamed Yazdani Nezhad
University of Leeds

Venue: R9

TOPIC: Multiferroics II
CHAIR: Silvia Picozzi

13:30 Electric-field Induced Multiferroic Topological Solitons
INVITED SPEAKER: **Vincent Garcia**
Laboratoire Albert Fert

14:00 Strain-induced Multiferroic Behavior in $CuFeS_2$
Roman Malyshev
NTNU

14:15 High-Resolution Imaging of Ferrimagnetic and Antiferromagnetic Textures Using Electron and X-Ray Ptychography
Georgios Varnavides
NCEM, Lawrence Berkeley National Lab

14:30 Three-Dimensional Domain Identification in a Single Hexagonal Manganite Nanocrystal
Ahmed Mokhtar
University of Southampton

Venue: R9

TOPIC: Point-defect-driven phenomena I
CHAIR: Andreja Benčan Golob

13:30 High-accuracy Calculation of Point Defects Inside Non-metallic Materials and its Applications
INVITED SPEAKER: **Yu Kumagai**
Tohoku University

14:00 Effect of Cation Vacancies on the Thermal Conductivity of Ferroelectric Thin Films
Eric Langenberg
University of Barcelona

14:15 Mobility and Clustering of O Vacancies in the Paraelectric/Ferroelectric Phases of $BaTiO_3$ and $(Ba/Ca)(Ti/Zr)O_3$
Francesco Cordero
CNR-ISM

14:30 Domain and Domain Wall Conductance in Proximity to Metallic Contacts
Leonie Richarz
NTNU

14:45–15:15 **Coffee Break**

15:15–16:30 **Parallel 8**

Venue: R3

TOPIC: Photo-induced effects and related phenomena II
CHAIR: Gustau Catalan

15:15 Negative Differential Photoconductivity and Gunn-like Oscillations in $SrTiO_3$
INVITED SPEAKER: **Marin Alexe**
University of Warwick

15:45 Band Gap Tuning in Brownmillerites for Applications as Photoferroic Materials
Paul Dirk
Durham University

16:00 Lessons and Opportunities for Bandgap Engineering of Ferroelectric Perovskite Oxides
Yang Bai
University of Oulu

16:15 Ferroelectric Oxide Thin Films as an Emerging Candidate for Self-Powered Photodetection
Jayakrishnan Ampattu Ravikumar
University of Minho

Venue: R5

TOPIC: Applications of ferroelectrics, piezoelectrics, and related materials III
CHAIR: Jacob Jones

15:15 Applications of Lead-free Piezoelectric Materials
INVITED SPEAKER: **Erling Ringgaard**
CTS Ferroperm Piezoceramics A/S

15:45 Advancements in Anti-Ferroelectric MLCCs for High-Performance DC Link Capacitors
Holger Neubert
Fraunhofer IKTS

16:00 Synergetics Boost of Functional Properties Near Critical End Points in Antiferroelectric Systems
Nikola Novak
Institute Jozef Stefan

16:15 Temperature-Electric Field Phase Diagram of $PbZrO_3$ Through Shell-model Simulations
Mónica Graf
Czech Academy of Sciences

Venue: R7

TOPIC: Domains and Domain Walls IV
CHAIR: Jonathan Spanier

15:15 Reducing User-bias in PFM Signal Interpretation by Machine Learning Analysis
INVITED SPEAKER: **Nazanin Bassiri-Gharb**
Georgia Insitute of Technology

15:45 Atomic Force Microscopy-based Nano-machining Studies of Sub-surface Ferroelectric Domain Configurations in Ultrathin Films
Lynette Keeney
Tyndall National Institute

16:00 Exploring Domain Wall Dynamics and Creating New Topological Structures
INVITED SPEAKER: **Neus Domingo Marimon**
CNMS/ORNL

Venue: R9

TOPIC: Multiferroics III
CHAIR: Elizabeth C. Dickey

15:15 Probing Structural Defects in Multiferroic Thin Films at Atomic Resolution
INVITED SPEAKER: **Marta D. Rossell**
Electron Microscopy Center, Empa Swiss Federal Laboratories for Materials Science and Technology

15:45 Atomic-Resolution STEM Analysis of Polar States in Multiferroic $Sr_{1-x}Ba_xMnO_3$ Thin Films
César Magén
Instituto de Nanociencia y Materiales de Aragón (CSIC-Universidad de Zaragoza)

16:00 Understanding and Optimizing Magnetoelectric Switching in $BiFeO_3$ Thin Films
INVITED SPEAKER: **Natalya Fedorova**
Luxembourg Institute of Science and Technology

Room: R8

Venue: R8

TOPIC: Point-defect-driven phenomena II
CHAIR: Yu Kumagai

15:15 Static and Dynamic Structural Characteristics of Defects in Perovskite Ferroelectrics through Scanning Transmission Electron Microscopy
INVITED SPEAKER: **Andreja Benčan Golob**
Jozef Stefan Institute

15:45 Tailoring Dielectric Permittivity in $GdxCe_{1-x}O_{2-\delta}$ Films by Ionic Defect Control
Alessandro Palliotto
Technical University of Denmark

16:00 Structural Studies of Helium-implanted $BiFeO_3$ and $PbZrO_3$ Polycrystalline Films
INVITED SPEAKER: **Mael Guennou**
University of Luxembourg

16:30–18:00 **Poster Session**

19:30–22:30 **Conference Dinner & Awards**

WEDNESDAY 19 JUNE

08:45–09:30 **Plenary session with Jürgen Rödel**

Venue: R7

KEYNOTE: New processing approaches: dislocation-tuned functionality and black light sintering of ceramics

09:30–09:45 **Coffee Break**

09:45–10:45 **Parallel 9**

Venue: R3

TOPIC: Advanced Imaging of Dielectric and Ferroic Systems III
CHAIR: Nives Strkalj

09:45 Nanostructured ferroelectric films by chemical solution deposition
INVITED SPEAKER: **Mari-Ann Einarsrud**
NTNU

10:15 Predicted Enhancement of Magnetoelectric Composite Coupling by Interface Engineering
Yonatan Calahorra
Technion - IIT

10:30 Ferroelectric Thin Films Epitaxially Obtained by Pulsed Laser Deposition
Cristina Chirila
INCDFM

10:45 Growth Control of Magnetic Perovskite/2D Topological Insulator Heterostructures - Towards Tailoring Interfacial Magnetic Interactions
Damian Brzozowski
NTNU

Venue: R5

TOPIC: Ceramics Processing VII
CHAIR: Kyle Webber

09:45 Barium Zirconate Titanate Barium Calcium Titanate Thin Films from the Viewpoint of Processing-Microstructure-Properties-Relationship
INVITED SPEAKER: **Barbara Malič**
Jožef Stefan Institute, Electronic Ceramics Department

10:15 Microstructure Design for Optimized Functional Properties of $Ba(Zr_{0.2}Ti_{0.8})O_3$-$(Ba_{0.7}Ca_{0.3})TiO_3$ Thin Films by Chemical Solution Deposition
Sabi William Konsago
Jožef Stefan Institute

10:30 Aqueous One-pot Synthesis of Potassium Sodium Niobate (KNN) Using the Hexaniobate Polyoxometalate
Mark Rambaran
Lund University

10:45 BCTZ Lead Free Thin Films With Ce Doping Gradient: Enhanced Piezoelectricity and Relaxor Behaviour
Beatrice Negulescu
GREMAN Université de Tours

Venue: R7

TOPIC: Applications of Ferroelectrics, Piezoelectrics, and Related Materials IV
CHAIR: Cristina-Elena Ciomaga

09:45 Ferroelectric Materials for Heating and Cooling Applications
INVITED SPEAKER: **Xavier Moya**
University of Cambridge

10:15 High-performance Heat Transfer in Pyroelectric Materials
Qingping Wang
University of Bath

10:30 The Background Specific Heat of Ferroelectrics
Ilya Shnaidshtein
Lomonosov Moscow State University

10:45 Optimization of Grain Size on Modified (Ba,Sr)(Sn,Ti)O_3 for Electrocaloric Components Fabrication
Zhenglyu Li
Fraunhofer Institute for Ceramic Technologies

Venue: R9

TOPIC: Domains and Domain Walls V
CHAIR: Ipek Efe

09:45 Domain Boundary iInvestigations by Using a Second Harmonic Generation Microscope
INVITED SPEAKER: **Hiroko Yokota**
Tokyo Institute of Technology

10:15 Imaging of Ferroelectric Domains Using On-chip Digital Holographic Microscopy and Tomography
Pavel Mokry
Institute of Plasma Physics

10:30 Tracking Ferroelectric Domain Formation During Epitaxial Integration of $BaTiO_3$ Thin Films on Silicon Templates
Bixin Yan
ETH Zurich

10:45 Multifunctional Sm-doped $PbMg_{1/3}Nb_{2/3}O_3$–$PbTiO_3$ Relaxor Ferroelectric Thin Films With Polymorphic Domains and Slush-like Polar Structure
Zouhair Hanani
Jozef Stefan Institute

Venue: R8

TOPIC: Organic Ferroelectrics, Piezoelectrics, and Related Materials I
CHAIR: Mingmin Yang

09:45 Ferroelectric Domains in the Simplest Amino Acid Glycine
INVITED SPEAKER: **Andrei Kholkin**
University of Aveiro

10:15 Structure-property Correlation in Hexamine-based Novel Organic Ferroelectrics
Manjunath Balagopalan
Department of Chemistry, University of Oslo

10:30 New thermodynamic and Dielectric Signatures in Hybrid Organic-Inorganic Ferroelectric dabcoHReO$_4$
Gwenn Morvézen
G2elab/Neel Institute

10:45 Synthesis of Piezoelectric (TMA)[$FeCl_4$] and Integration Into a Polymer Composite
Marion Dosantos
Université de Bordeaux

11:00–11:15 **Coffee Break**

11:15–12:15 **Parallel 10**

Venue: R3

TOPIC: Photo-induced Effects and Related Phenomena III
CHAIR: Neamul Hayet Khansur

11:15 Stabilizing Polar Polymorphs of Scandium Ferrite for Photovoltaics
INVITED SPEAKER: **Lauren Garten**
Georgia Institute of Technology

11:45 Opto-Electronic Control Domain Manipulation in Ferroelectric Oxides
Subhajit Pal
Queen Mary University of London

12:00 Influence of Domain Structure Manipulation on Bulk Photovoltaic Effect in $Pb(Mg,Nb,Ti)O_3$ (PMN-PT) Single Crystals
Vasilii Balanov
University of Oulu

Venue: R5

TOPIC: Advanced structure and domain studies IV
CHAIR: Dmitry Chernyshov

11:15 Lead vs Bismuth: Effect of Incommensurately Modulated Structures on Polar Order in Tetragonal Tungsten Bronzes
INVITED SPEAKER: **Ola Grendal**
NTNU

11:45 Structure and symmetry of the filled tetragonal tungsten bronze, $Sr_2NaNb_5O_{15}$
Richard Beanland
University of Warwick

12:00 Exploring Temperature-Dependent Evolution of Chemical Bonds at Interface Between Oxide Membranes and Perovskite Single-terminated Crystals
Greta Segantini
University of Geneva

Venue: R7

TOPIC: Applications of ferroelectrics, piezoelectrics, and related materials V
CHAIR: Xavier Moya

11:15 Ferroelectrics Field Effect Transistor for analog implementation of neural networks
INVITED SPEAKER: **Pavel Mokry**
Institute of Plasma Physics

11:45 High Energy Storage Performance at Low Electric Fields/Voltages in Epitaxial Dielectric Thin-Film Capacitors
Jamal Belhadi
University of Picardie Jules Verne

12:00 Wearable Device That Monitors Cough by Employing Piezoelectric Energy Harvesting Configurations
Yang Bai
University of Oulu

Venue: R9

TOPIC: Multiferroics IV
CHAIR: Natalya Fedorova

11:15 Tilting and Distortion in the Multiferroic Aurivillius Phase $Bi_6Ti_3Fe_{1.5}Mn_{0.5}O_{18}$
INVITED SPEAKER: **Lynette Keeney**
Tyndall National Institute

11:45 Prediction of Room-Temperature Electric Field Reversal of Magnetization in the Family of $A_4B_3O_9$ Layered Oxides
Urmimala Dey
Durham University

12:00 Enhancing Vertical Polarization in Aurivillius Phase Ferroelectric Thin Films Through Spiral-Mediated Growth
Debismita Dutta
University College Cork

Venue: R8

TOPIC: Organic Ferroelectrics, Piezoelectrics, and Related Materials II
CHAIR: Andrei Kholkin

11:15 Exploring the Polar Phase in Hybrid Organic-Inorganic Perovskites
Katarzyna Fedoruk-Piskorska
Wrocław University of Science and Technology

11:30 Synthesis and functional properties of flexible PVDF-TrFE-based ferroelectric composites
Roxana Patru
National Institute of Materials Physics

11:45 Modification of P(VDF-TrFE) copolymers by electron irradiation: Evaluation of structural, electrical and electrocolaric property changes
Michael Wegener
Fraunhofer IAP

Note: *This session ends at 12:00*

12:15–13:30 **Lunch**

13:30–14:30 **Parallel 11**

Venue: R3

TOPIC: Emergent Phenomena in Dielectrics and Ferroics III
CHAIR: Lauren Garten

13:30 Structure-Property Relationships: A-Site Cations Redistribution in Polar Perovskite Oxides
INVITED SPEAKER: **Neamul Hayet Khansur**
Friedrich-Alexander-Universität

14:00 Multiscale Structural Response of $(1-x)Na_{0.5}Bi_{0.5}TiO_3$-$xBaTiO_3$ Single Crystals to High Pressures
Constanze Rösche
Universität Hamburg

14:15 Effect of Poling Field on Photo-Luminescence of Eu^{3+} and Pr^{+3} Doped $(Na_{0.41}K_{0.09}Bi_{0.5})\ TiO_3$: Lead-Free Piezoelectric
Pinki Yadav
Raja Ramanna Centre for Advanced Technology, Indore

Venue: R5

TOPIC: Ceramics processing IX
CHAIR: Barbara Malič

13:30 Powder-Based High-Throughput Solid-State Synthesis of Ceramics
INVITED SPEAKER: **Kyle Webber**
Frierich-Alexander-Universität Erlangen-Nürnberg

14:00 Recycling of Lead-Containing Piezoceramics Through Oxide-Halide Upside-Down Composite Route
Mohadeseh Tabeshfar
university of Oulu

14:15 A Combined Experimental and Theoretical Study on Factors Influencing Piezoelectric Properties of Upside-Down Composites
Sivagnana Sundaram Anandakrishnan
University of Oulu

Venue: R7

TOPIC: Applications of Ferroelectrics, Piezoelectrics, and Related Materials VI
CHAIR: Pavel Mokry

13:30 Engineering of Lead-Free Porous Ceramic Materials for Piezoelectric Sensors With Energy Harvesting Applications
INVITED SPEAKER: **Cristina-Elena Ciomaga**
Alexandru Ioan Cuza University of Iasi, Romania

14:00 Polarization and Relative Phase Stability in Doped ZrO_2
Alexandre Silva
Universidade do Minho

Note! *This session ends at 14:15*

Venue: R9

TOPIC: Ferroelectric thin films and heterostructures VI
CHAIR: Denis Alikin

13:30 Film Thickness Dependency of Domain Structure in (100)/(001)-Oriented Epitaxial $PbTiO_3$ Films
INVITED SPEAKER: **Takao Shimizu**
National Institute for Materials Science

14:00 Texturing and Ferroelectric Properties of $Sr_xBa_{1-x}Nb_2O_6$ Thin Films Prepared by Aqueous Solution Deposition
Viviann Hole Pedersen
NTNU

14:15 Ferroelectric Domains in Hexagonal $DyMnO_3$ Polycrystals With Inhomogeneous Grain-Size Distribution
INVITED SPEAKER: **Ruben Skjelstad Dragland**
NTNU

Venue: R8

TOPIC: Ceramics Processing VIII
CHAIR: Caren Regine Zeiger

13:30 Efficient Sintering Strategy to Produce Functional Lead-Free Piezoelectric $(K,Na,Li)(Nb,Ta)O_3$ Piezoelectric Ceramics for Applications
INVITED SPEAKER: **Isabelle Monot-laffez**
GREMAN laboratory

14:00 Influence of Composition and Process Control on the Thermistor Properties of Doped Barium Titanate
Christian Molin
Fraunhofer Institute for Ceramic Technologies and Systems IKTS

Note! *This session ends at 14:15*

14:30 **End**

16:00–19:00 **Post Conference Tours**

16:15 Trondheim by Boat, departure 1 (be there at 16:00)

16:30 Hike the mountains of Bymarka

17:15 Trondheim by Boat, departure 2 (be there at 17:00)

POSTERS

POSTERS

316: Non-Destructive Tomographic Nanoscale Imaging of Ferroelectric Domain Walls
Jiali He
NTNU

202: Characteristics of the $Ba_4Na_2Nb_{10}O_{30}$-$K_4Bi_2Nb_{10}O_{30}$ Tetragonal Tungsten Bronze Solid Solution System Across Two Proximate Phase Transitions
Caren Regine Zeiger
NTNU

176: Autoencoder Models for Accelerated Scanning Transmission Electron Microscopy Characterization of Ferroelectrics and 2D Materials
Xinqiao Zhang
Drexel University

256: Yet another ground state for $PbZrO_3$?
Mónica Graf
Czech Academy of Sciences

116: Unusual Phase Transition Into Frustrated Antipolar Phase in Ferromagnetic $EuAl_{12}O_{19}$
Stanislav Kamba
Czech Academy of Sciences

251: The Indirect Investigations of the Electrocaloric Effect in Selected Ferroelectric Materials
Magdalena Krupska-Klimczak
University of National Education Commission

190: The Impact of Aging on the Electrocaloric Effect in $(Na_{0.5}Bi_{0.5})TiO_3$ – $BaTiO_3$ Perovskite Ceramics
Sobhan Fathabad
University of Duisburg-Essen

259: Surface Preparation of Magnetic Oxide and Topological Insulator for Band Structure Measurements
Øyvind Finnseth
NTNU

248: Structural, Dielectric, Piezoelectric, Electrocaloric Properties and Energy Storage Density of $Ba_{0.92}Ca_{0.08}Ti_{0.91}Zr_{0.09}O_3$ and $Ba_{0.92}Ca_{0.08}Ti_{0.91}Sn_{0.09}O_3$ Lead-Free Ceramics
Ramovatar Ramovatar
Central University of Haryana

291: Selective Deposition of $BaTiO_3$ Using a Self-Assembled Monolayer Template
Karola Neeleman
NTNU

114: Reentrant Relaxor Phenomenon in Barium Titanate Zirconate Based Solid Solutions
Eva Kröll
University of Duisburg-Essen

226: Preparation of Porous $BaTiO_3$-Based Ceramics by Using Multi-Walled Carbon Nanotubes and Exploring Their Functional Properties
Felicia Gheorghiu
Department of Exact And Natural Sciences, Institute Of Interdisciplinary Research, Alexandru Ioan Cuza University Of Ia

129: Phase transition in thick metallic films of $Ti_3C_2T_x$ MXene: possible sliding ferroelectricity
Francesco Cordero
CNR-ISM

244: Phase Transition Behaviors Near the Tricritical Point for $Pb(Zr_{1-x}Sn_x)O_3$ Antiferroelectric Single Crystals
Irena Jankowska-Sumara
University of the Commission of National Education

148: Nano-Electrical Characterization of Moiré Bilayers
Mirko Bacani
attocube systems AG

125: Optimizing Gallium Nitride Cap for Enhanced AlScN-GaN Heterostructures by Comprehensive STEM Analysis
Niklas Wolff
Kiel University

234: Optical Spectral Characteristics of MoS_2 Carnation Petals for Polar Transformation and Dye Adsorption
Piyush Siroha
Central University of Haryana

280: On-the-Fly Machine-learned Potentials for MD Simulations of Ferroelectric Materials
Kristoffer Eggestad
NTNU

239: Observation and Control of Ferroelectric Nanodomains in $Gd_2(MoO_4)_3$
Ivan Ushakov
NTNU

271: Nonferroelectric contributions to Hysteresis Cycles and Direct Measurements of Electrocaloric Effect in $CuInP_2S_6$
Ilona Zamaraite
Vilnius University

207: Nanoscale analysis of domain structures in multi-layered ceramic capacitor using piezoresponse force microscopy
Jaechan Shim
Sungkyunkwan University

275: Local Ferroic Properties of Ferroelastic Domain Walls in $CaMnO_3$
Ida Cathrine Skogvoll
NTNU

233: Investigation of Ferroelectric $ErMnO_3$ by Analytical Scanning Transmission Electron Microscopy
Eoin Moynihan
University of Warwick

288: Local electric field control of topologically protected ferroelectric domain walls in $ErMnO_3$
Manuel Zahn
NTNU

271: Grain-Size and Content Effects on Dielectric Properties of $BaTiO_3$/PDMS Composites
Darya Meisak
Vilnius University

237: First Principles Insights Into Phase Transitions, Disorder and Electronic Properties of Lead-Free Tetragonal Tungsten Bronzes
Benjamin Williamson
NTNU

92: First Demonstration of High Remanent Polarisation in 10 nm Polycrystalline Ferroelectric $BaTiO_3$ Films
Pratik Bagul
KU Leuven, IMEC

305: Enhancement of optical absorption in multiferroic (1-x)PZTxPFN thin films: Experiments and first-principles analysisEnhancement of optical absorption in multiferroic (1-x)PZTxPFN thin films: Experiments and first-principles analysis
Lucía Imhoff
IFIR-CONICET

314: Energy Harvesting from Natural and Anthropogenic Vibrations
Nikolai Helth Gaukås
SINTEF AS

235: Dynamic Mechanical Aging of Silicone Rubber for HV Cable Accessory Insulation
Oscar Kayanja
NTNU

273: Depth Resolved Antiferromagnetic Spin Structure by Resonant X-ray Reflecivity
Yu Liu
NTNU

213: Challenges in the Treatment of Aerosol-Deposited Thick Piezoelectric Films
Michel Kuhfuß
FAU Erlangen-Nuremberg

227: Broadband Dielectric Measurements of $PbHf_{1-x}Sn_xO_3$ Single Crystal
Vadzim Haronin
Vilnius University