

# Fysikermøtet - National Physicists' Meeting 2023

Bergen 9.-11. august 2023

Conference venue: Vilvite - Thormøhlens gate 51

## Wednesday 9<sup>th</sup> of August

### 10:00-10:30 Registration and Coffee

### 10:30-13:00 Plenary session

*Chair: Hilde Nesse*

10:30-10:45 Welcome to Bergen and UiB  
*Hilde Nesse, Vice president*

10:45-11:15 Hva jeg lærte av Penrose og Zeilinger  
*Torkild Jemterud from NRKs Abel's Tower*

11:15-11:45 Introduction of the nominees for the outreach price.  
*Ida Torkjellsdatter Storehaug and Josephine A. Salice*

11:45-12:30 Annual meeting, Norwegian Physical Society  
*Sunniva Siem, President*

**12:30-13:30 Lunch**

### 13:30-15:30 Parallel sessions

Undervisning I fysikk/Teaching physics (Auditorium)

Subatomic physics and astrophysics (Konferanserom AB)

Space, plasma and climate physics (Konferanserom CD)

**15:30-16:00 Coffee break**

### 16:00-17:00 Plenary session

*Chair: Kristian Ytre-Haugen*

16:00-16:30 Treating cancer with proton radiotherapy  
*Camilla Stokkevåg, medical physicist, researcher and Associate Prof. II  
Haukeland University Hospital/UiB*

16:30-17:00: Setting the story straight about how vibrating surfaces produce sound  
*Erlend Magnus Vigen, Researcher, Department of Circulation and  
Medical Imaging, NTNU*

**17:00-19:00 Aperitif and physics exhibition at Vilvite**

## Thursday 10<sup>th</sup> of August

### 09:00-10:00 Plenary Session

*Chair: Håvard Helstrup*

09:00-09:30 Energy for everyone: Is solar energy the solution?  
*Dhayalan Velauthapillai, Group leader, Advanced Nanomaterials for Clean Energy and Health Applications, Professor in physics, HVL*

09:30-10:00 Exploring the early universe with James Webb Space Telescope: the importance of spectroscopy  
*Dr. Emma Curtis-Lake, STFC Webb Fellow, Centre for Astrophysics Research, University of Hertfordshire*

**10:00-10:20 Coffee break**

### 10:20-12:00 Parallel sessions

Undervisning i fysikk/Teaching physics (Auditorium)

Biophysics and Medical Technology (Konferanserom AB)

Space, plasma and climate physics (Konferanserom CD)

**12:00-13:00 Lunch**

### 13:00-14:40 Parallel session

Undervisning i fysikk/Teaching physics (Auditorium)

Subatomic physics and astrophysics (Konferanserom AB)

Biophysics and Medical Technology (Konferanserom C)

Space, plasma and climate physics (D)

**14:40-15:00 Coffee break**

### 15:00-17:00 Plenary session

*Chair: Arne Kristoffersen*

15:00-15:30 International Nuclear Power Perspectives – And What About Norway?  
*Ole Christen Reistad, Head of radiation protection, Agilera Pharma AS, former reactor manager, JEEP II, Kjeller*

15:30-16:00 Seaborg's Molten Salt Reactor  
*Esben Klinkby, Seaborg Technologies - Co-founder & Head of Analysis, PhD*

**16:00-16:10 Coffee break**

16:10-17:00 Panel debate on nuclear power  
Ole Christen Reistad, Head of radiation protection, Agilera Pharma AS, former reactor manager, JEEP II, Kjeller  
Esben Klinkby, Seaborg Technologies - Co-founder & Head of Analysis, PhD  
Dieter Röhrich, Professor, Nuclear physics, IFT, UiB  
Jonny Hesthammer, CEO, Norsk Kjernekraft AS

**19:00 Dinner, Søtt og Salt - Lanternen**

### Friday 9<sup>th</sup> of August

#### 09:00-09:30 Plenary session

Chair: Stein Dankert Kolstø

09:00-09:30 Engasjerende fysikk: Bruk av kropp og sanser for økt forståelse  
*Magdalena Kersting, Førsteamanuensis i naturfagdidaktikk ved Institut for Naturfagenes Didaktik, Københavns Universitet.*

#### 09:30-10:00 Coffee break and poster session

#### 10:00-12:15 Parallel session

Undervisning i fysikk/Teaching physics (Auditorium)

Subatomic physics and astrophysics (Konferanserom AB)

Optics (Konferanserom C)

Condensed Matter Physics and Atomic physics (Konferanserom D)

#### 12:15-13:15 Lunch

#### 13:15-15:00 Plenary session

Chair: Hilde Nesse

13:15-13:30: European Physical Society , their first Forum and plans for the next Forum  
*Anna Lipniacka, Professor, University of Bergen / Board of the European Physical Society*

13:30-13:45: *Winner of Martin Landrø's prize*

13:45-14:00: *Winner of Martin Landrø's prize*

14:00-14:15: *Winner of the teaching award*

14:15-14:30: *Winner of the outreach award*

14:30-14:45: *Closing Remarks*

## Parallel sessions:

### Wednesday 9<sup>th</sup> of August

#### 13:30-15:30 Parallel sessions

<b>Undervisning I fysikk/Teaching physics (Auditorium)</b> <i>Chairs: Kaja Nordby og Stein Dankert Kolstø</i>	<b>Subatomic physics and astrophysics (Rom AB)</b> <i>Chair: Anders Tranberg</i>	<b>Space, plasma and climate physics (Rom CD)</b> <i>Chair: Audun Theodorsen</i>
13:30 Stein Dankert Kolstø: Elevers faglige fremgang gjennom diskusjon av hverandres forslag til forklaringer	13.30 Jörn Kersten: Curing Sterile Neutrino Dark Matter with a Dark Force	13:30 Karl Magnus Laundal: How the ionosphere perturbs Earth's magnetic field
13:55 Ingjald Pilskog: Hvordan bør vi utvikle fysikkfagets profil for å nå flere elever?	13.50 Magdalena Eriksson: Stochastic inflation and its effective noise amplitude	14:00 Margot Decotte: MAGLEGO - a LEGO model of the magnetosphere
14:35 Pause	14.10 Vegard Undheim: Gravitational wave science arrives at Stavanger	14:20 Ville Maliniemi: Effect of energetic particle precipitation on Antarctic stratospheric ozone from the CFC era into the future
14:45 Årsmøte i Norsk Fysikklærerforening - Hybrid - Ledet av Kaja Nordby	14.30 Alexander Rothkopf: Machine-learning assisted complex Langevin real-time simulations	14:40 Årsmøte i Rom-, Plasma og Klimafysikk/ Yearly meeting in Space, Plasma and Climate Physics - Hybrid
	14.50 Konrad Tywoniuk: Exploring the Equilibration Time of the QGP with Jet Quenching	
	15.10 Alexandre Falcao: Universality of jet energy loss in the quark-gluon plasma using Bayesian inference	

### Thursday 10<sup>th</sup> of August

#### 10:20-12:00 Parallel sessions

<b>Undervisning I fysikk/Teaching physics (Auditorium)</b> <i>Chairs: Kaja Nordby og Stein Dankert Kolstø</i>	<b>Biophysics and Medical Technology (Rom A)</b> <i>Chair:</i>	<b>Space, plasma and climate physics (Rom CD)</b> <i>Chair: Audun Theodorsen</i>
10:20 Hanne Starfish Henningsen: Poesi som arbeidsmåte i fysikk	10:20 Deanna Wolfson, UiT: A view into fish skin – multimodal microscopy of salmon epithelial cells	10:20 Hilde Nesse: Energetic electron precipitation during slot region filling events
10:45 Nils-Erik Bomark: Kvanteobjekter	10:45 Harish Pruthviraj Jain, Njord Centre, Department of Physics, UiO: Energy profiles and statistics of spontaneous T1 transitions in confluent	10:40 Josephine Salice: When are energetic electrons producing NO directly in the upper stratosphere?

	tissues	
11:10 Reidun Renstrøm: Einsteins revolusjonerende lyskvanthypotese	11:10 Kristian S Ytre-Hauge, Department of physics and technology, UiB, Biological dose in proton therapy	11:00 Jone Edvartsen: Investigating the impact of space weather on the polar atmosphere using rigorous statistical methods
	11:35 Erlend Lyngholm, Department of physics and technology, UiB, Towards a unified proton relative biological effectiveness model for clinical application	11:30 Ingrid Bjørge-Engeland: High peak current lightning and the production of Elves
<b>Subatomic physics and astrophysics (Rom B)</b> <i>Chair: Bjarne Stugu</i>		
10.20 Ida Storehaug: Beauty measurements via non-prompt $\$J/\psi\$$ in ALICE		
10.40 Anastasia Merzlaya: Open charm measurements at SPS energies in the NA61/SHINE		
11.00 Alex Nielsen: Gravitational waves with ground-based detectors of the LVK collaborations		

<b>13:00-14:40 Parallel session</b>		
<b>Undervisning I fysikk/Teaching physics (Auditorium)</b> <i>Chairs: Kaja Nordby og Stein Dankert Kolstø</i>	<b>Biophysics and Medical Technology (Rom A)</b> <i>Chair:</i>	<b>Space, plasma and climate physics (Rom CD)</b> <i>Chair: Karl Magnus Laundal</i>
13:00 Sigrid Sjøstad: Bruk av spill og teknologiske hjelpemidler i real-fagsundervisning	13:00 Erika Eiser, PoreLab, Dept. of Physics, NTNU, Entropy-Driven, Whole Genome Detection	13:00 Audun Theodorsen: Algebraic pulses and exponential spectra in fluids and plasmas
13:25 Kaja Nordby: Bruk av video og quiz i Fysikkundervisning	13:25 Richard Ho, UiO, Minimal Model of Gastruloid Elongation	13:20 Sivert Eilertsen: Effects of Sampling Time on Complexity- Entropy Analysis
13:50 Idar Mestad: Hold spenningen oppe! Studenters utforskning av argumenter om elektrisk energiproduksjon gjennom plenumsrollespill	13:50 Andreas Handeland, Department of physics and technology, UiB and Haukeland University Hospital, Protonterapibehandling for barnekreft kan minske risiko for biverknadar	13:50 Eirik Enger: Insensitivity of global temperature response to the magnitude of volcanic eruptions
14:15 Andreas Hellesøy: Den ikke-ideelle fysikken	14:15 Johannes Tjelta Department of physics and technology, UiB and Haukeland University Hospital Radiation, Exposure to a parent-in-the- treatment-room during pencil	14:10 Samuel Kočiščák: Complex electrical signatures of dust impacts within 1AU recorded by Solar Orbiter

	beam scanning proton therapy	
<b>Subatomic physics and astrophysics (Rom B)</b> <i>Chair: Håvard Helstrup</i>		
13.00 Annual meeting of Section for Subatomic physics and astrophysics		
13.20 Discussion on Nordic nuclear physics meetings		
14.10 Who is who in Nuclear physics in Norway		

**Friday 9<sup>th</sup> of August**

**09:30-10:00 Poster session – all groups**

**10:00-12:15 Parallel session**

<b>Undervisning I fysikk/Teaching physics (Auditorium)</b> <i>Chairs: Kaja Nordby og Stein Dankert Kolstø</i>	<b>Optics (Rom C)</b> <i>Chair: Arne Kristoffersen</i>	<b>Subatomic physics and astrophysics (Rom B)</b> <i>Chair: Sunniva Siem</i>
10:00 Gerald Feldman: Enhancing Student Engagement in a Collaborative Group-Learning Environment using the SCALE-UP Pedagogy	10:00 Florian Ströhl: New Methods for 3D Microscopy	10.00 Vetle Wegner Ingeberg: The OSCAR Gamma Detector Array
10:25 Vegard Gjerde: Instructional material and methods as student-consumer products: Which products have product-market-fit in introductory physics?	10:20 Md Rabiul Hasan: Photonic chips for optical trapping and Raman spectroscopy	10.20 Lauren Bell: Dipole Resonances in the Well-Deformed Even-even Samarium ( $^{152,154}\text{Sm}$ ) Isotopes.
10:50 Kjellmar Oksavik and Kjartan Olafsson: Experiences with new teaching measures among first-year physics students	10:40 Roman Zakoldae: Mid-infrared spectroscopy on-chip with sub-ppm detection level	10.40 Johannes Sørby Heines: Measuring excited states of nuclei with the recoil distance Doppler-shift method
11:20 Martino Marisaldi: Teaching basic mechanics and thermodynamics at Bachelor level: a long journey from blackboard teaching to active learning	11:00 Gard Momrak Selnesaunet: The full truth about "resolution": Imaging the point spread function of hyperspectral cameras using tomographic reconstruction	11.00 Henrik Haug: Measurements of PFGs from $^{232}\text{Th}$ with different angular
11:45 Torbjørn Skauli: Wireless Physics - Making Amateur	11:20 Børge Hamre and Arne S. Kristoffersen: Light scattering	11.20 Kevin Ching Wei Li: Disentangling clustering

Radio Accessible as a Tool in Science Education Through an Upcoming New Licence	and absorption by atmospheric and oceanic particles – theory, natural optical phenomena, and satellite remote sensing	phenomena in 12C and 16O
	11:40 J.C. Tinguely: Integrated optical circuits for multimodal super-resolution microscopy	
<b>Condensed Matter Physics and Atomic physics (Rom D)</b> <i>Chair: Jan Petter Hansen</i>		
10:00 Abhishek Banerjee: Deciphering Atomic Structure and Hydrogen Sorption Kinetics and Uptake of TiFe-Nb doped Metal-Alloys utilizing Combined Techniques: Synchrotron PXRD, EXAFS and First-Principle DFT calculations.		
10:30 Diana Lucia: 1D Magnetism in Pauflerite		
Sofiiia Bercha: Combining in situ Raman and EXAFS studies: case of Ce-Zr Fumarate formation in water		