

Light & Materials Synergy Day 2023

Light Meets Materials

10 October 2023

Palaestra & AF-Borgen, Lund

8:30 Coffee and registration
Palaestra

8:55 Opening session

Palaestra auditorium

Chair: Stacey Ristinmaa Sörensen

9:00 Welcome and opening by Lena Eliasson, Chair of the board of Light & Materials

9:05 Presentation and update of:

- Light & Materials, Tõnu Pullerits, Coordinator LU Profile area Light & Materials
- Lund Laser Centre, Per Eng-Johnsson, Director Lund Laser Centre
- NanoLund, Anders Mikkelsen, Director NanoLund
- MAX IV, Olof “Charlie” Karis, Director MAX IV Laboratory

10:10 Poster pitches

Palaestra auditorium

Chair: Ivan Scheblykin

10:45 Coffee

Palaestra

11:20 Plenary talks

Palaestra auditorium

11:20 Plenary talk. Chair: Anders Mikkelsen
Managing photons with nanostructures: from single-molecule detection to solar energy. Heiner Linke, Professor Solid State Physics

11:50 Plenary talk. Chair: Per Eng-Johnsson
Ultrashort light pulses meet materials. Anne L’Huillier, Professor Atomic Physics

12:30 Lunch and posters

AF-borgen Festvåningen and Sångsalen

13:45 Parallel sessions

Medicine & Light

Palaestra övre

Chair: Christelle Prinz

Clinical Spectroscopy – Light for non-invasive diagnostics, Aboma Merdasa (Ophthalmology)

Novel approaches to resolve molecular structures in living systems at nanoscale,

Oxana Klementieva (Medical

Microspectroscopy)

When light meets sound - microscale manipulation of fluids, Per Augustsson (Biomedical Engineering)

Ultrasound optical tomography and plans for first test in humans, Sophia Zackrisson (Radiology Diagnostics)

Beyond nanoscale localisation: Using polarised light to measure molecular organisation in cells, Vinay Swaminathan (Cell mechanobiology)

Energy

Palaestra nedre

Chair: Francesca Curbis

Next-generation wide- and ultra-wide bandgap semiconductors for energy-efficient high-frequency and power electronics, Vanya Darakchieva (Solid State Physics)

Metal combustion as Renewable Energy carrier, Zhongshan Li (Combustion Physics)

Towards solar energy conversion with Fe-based molecules bound to semiconductor nanoparticles, Linnea Lindh (Chemical Physics)

Tandem Junction GaInP/InP Nanowire Photovoltaic Devices – Processing and Characterization, David Alcer (Solid State Physics)

Integrating Robotic Synthesis with in-situ Multimodal Hard X-ray Characterization to Unravel Complex Synthesis Processes for Metal-Halide Perovskites, Justus Just, (MAX IV)

15:00 Coffee and posters

AF-borgen Festvåningen

15:45 Parallel sessions

Climate & Environment

Palaestra nedre

Chair: Joakim Bood

Catalysis in the light of lasers, Johan Zetterberg (Combustion Physics)

Closing the Loop: Advanced X-ray spectroscopy a key for Safe Secondary Use of Materials, Jenny Rissler (Ergonomics and Aerosol Technology)

UV breakdown of plastics and its effects on toxicity of nanoplastics, Tommy Cedervall (Biochemistry and Structural Biology)

Aerosol-cloud-climate interactions Moa Sporre (Combustion Physics)

Light meets insects, Mikkel Brydegaard (Combustion Physics)

Quantum Physics & Technology

Palaestra övre

Chair: Tõnu Pullerits

Emission enhancement of rare-earth-doped nano-materials, Andreas Walther (Atomic Physics)

Quantum networks: from physics to technology, Armin Tavakoli (Mathematical Physics)

Convergence of Light and Matter in the Phenomenon of Perovskite Superradiance, Dmitry Baranov (Chemical Physics)

Thermoelectric cooling of a finite-size reservoir, Stephanie Matern (Solid State Physics)

One photon at a time: Detection of individual microwave photons using cavity-coupled quantum dots, Subhomoy Haldar (Solid State Physics)

17:00 Posters and pre-dinner drinks

AF-borgen, Festvåningen and Sångsalen

19:00 Dinner at Grand Hotel

Pre-registered only