



NANOLUND

A GREAT PLACE TO DO NANOSCIENCE

Program for the Annual Meeting 2020

Nanotechnology solutions for Life Science problems
28 September 2020, AF-Borgen, Sandgatan 2, Lund – and online!

More information: www.nano.lu.se/annualmeeting2020

08:30 – 08:55 Coffee and registration.

Opening session

Chairs: Anders Mikkelsen, Ivan Scheblykin

08:55 – 09:00 Welcome and opening by Viktor Öwall, Dean of LTH.

09:00 – 09:40 NanoLund update by Heiner Linke, Director of NanoLund.

09.40 – 10.25 Junior Scientist Ideas Award presentations.

Kim von Allmen (Synchrotron Radiation Research): *Microfluidic system for sorting single crystals in solution with X-ray diffraction.*

Egle Kelpsiene (Center for Molecular Protein Science): *Gene expression as an indicator of the molecular response in freshwater organism *Daphnia magna* after chronic exposure to polystyrene nanoparticles.*

Michael S. Seifner (Centre for Analysis and Synthesis): *Controlled Crystallisation and Stabilisation of Metastable α -Sn on InSb Nanowires.*

Ruben Seoane Souto (Solid State Physics): *Transport signatures of odd-frequency superconductivity in superconducting nanostructures.*

Pavel Kolesnichenko (Chemical Physics): *Towards Application of Artificial Neural Networks to the Analysis of Two-Dimensional Electronic Spectra of Low-Dimensional Materials.*

10:25 – 10:40 Other Awards:

Young Teacher Award

Excellent Support Award

10:40 – 11:00 Break

Honorary doctorate lecture

11:00 – 12:00 Camilla Modéer, chosen in 2020 by LTH for an Honorary Doctorate:

Excellence versus purpose – tradeoff or synergy?

Lecture and panel discussion moderated by Jan Westberg,
Royal Swedish Academy of Engineering Sciences

12:00 – 13:00 Lunch



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Bio-inspired Computing and computing enabling solving biology problems

Chairs: Martin Leijnse, Peter Samuelsson

- 13:00 – 13:15 Marcel Sayre (Functional Zoology): *Comparative connectomics: unraveling the circuitry of a navigation center in the insect brain.*
- 13:15 – 13:30 Robin Atle (Nano Electronics): *Ferroelectric Tunnel Junctions for Neuromorphic Computation.*
- 13:30 – 13:45 Patrick Potts (Mathematical Physics): *The thermodynamic uncertainty relation: from quantum dots to molecular motors.*
- 13:45 – 14:00 Jingyuan Zhu (Solid State Physics): *Network Designing for Solving the 3-SAT Problem via Network-based Biocomputation.*

14:00 – 14:30 Break

Nano for precision medicine

Chairs: Jonas Tegenfeldt, Jens Schouenborg

- 14:30 – 14:45 Bao Dang Ho (Solid State Physics): *High throughput separation of nano extracellular vesicles in electrokinetic microfluidic devices.*
- 14:45 – 15:00 Jennifer Gilbert (Physical Chemistry): *Drug delivery systems: Lipid nanoparticles using ionisable lipids.*
- 15:00 – 15:15 Madeleine Petersson-Sjögren (Ergonomics and Aerosol Technology): *Airspace Dimension Assessment (AiDA) with nanoparticles correlates with pulmonary hyperpolarized ^{129}Xe Magnetic Resonance Imaging.*
- 15:15 – 15:30 Axel Broman (Department of Biomedical Engineering): *Acoustic Trapping - Capturing Exosomes and Nanoparticles with ultrasound.*

15:30 – 15:50 Break

Nanoscience addressing societal needs

Chairs: Sara Linse, Christina Isaxon

- 15:50 – 16:05 Jakob Löndahl (Ergonomics and Aerosol Technology): *Investigation of the presence of SARS-CoV-2 in aerosols.*
- 16:05 – 16:20 Egle Kelpsiene (Center for Molecular Protein Science): *Long-term exposure effects of polystyrene nanoparticles to *Daphnia magna*.*
- 16:20 – 16:35 Jae Shin (Solid State Physics): *Creating a next generation biosensor for early diagnostics.*
- 16:35 – 16:55 Kushagr Punyani (Diagonal Pharma AB): *From Lab Bench, To(wards) the Shelf – And the Inbetween.*
- 16:55 Concluding remarks.