

VISION: TO BE AT THE FOREFRONT OF NANOSCIENCE

Our vision is to be a world-leading research center that uses the unique opportunities offered by nanoscience and nanotechnology to advance fundamental science and to address societal challenges.

MISSION: TO BE A GREAT PLACE TO DO NANOSCIENCE

Our mission is to be a great place to do nanoscience for the nanotechnology of the future. We want to bring together the most creative scientists, students, and industry professionals in an interdisciplinary research environment to do cutting-edge research on the materials science, physics, chemistry, and safety of designed, functional nanostructures, enabling important fundamental science and nanotechnology for the future.



Background

HISTORY

NanoLund, the Center for Nanoscience at Lund University, was established in the year 2015 by agreement between the deans of the faculties of engineering (LTH), sciences, and medicine at Lund University. NanoLund was founded on the basis of the Nanometer Structure Consortium (initiated in 1988), which – during 2010-2015 – formed the Strategic Research Area nmC@LU.

NANOLUND'S TASKS WITHIN LUND UNIVERSITY

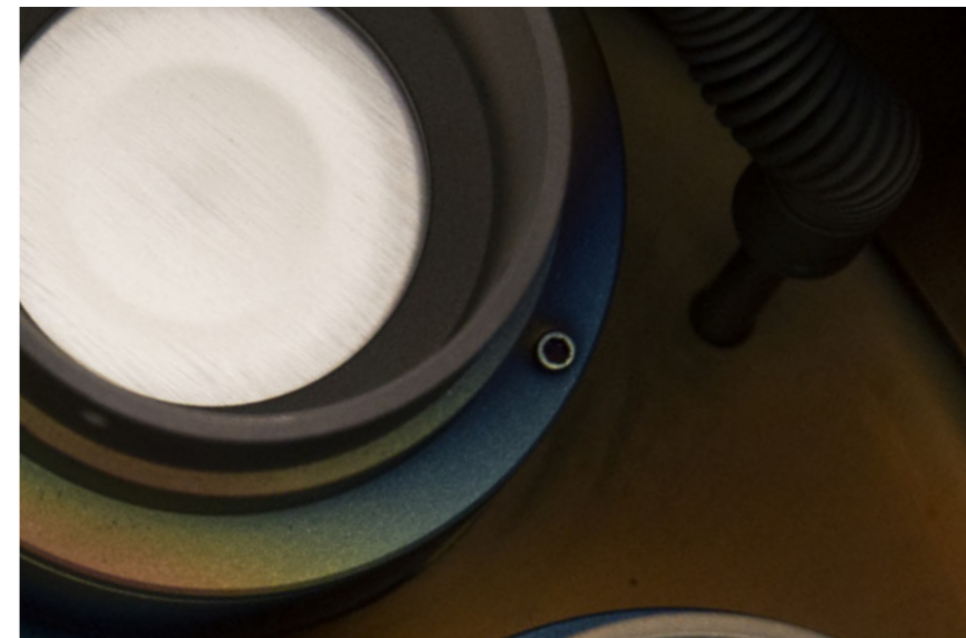
NanoLund was established with the task to coordinate and strengthen nanoscience at the faculties of Lund University by:

- Engaging in basic and applied nanoscience and nanotechnology;
- Developing and maintaining research infrastructure;
- Developing undergraduate and graduate education, integrated with research;
- Enhancing the visibility of nanoscience at Lund University;
- Facilitating innovation and utilization of nanotechnology;
- Providing a joint strategy for nanoscience at Lund University.

PURPOSE OF THE STRATEGIC PLAN

- The purpose of this strategic plan is to guide the work of NanoLund during the period 2020–2025, and to define and communicate NanoLund's overarching strategy internally and externally.
- The strategic plan also forms the basis for NanoLund's operational plan, which identifies and prioritizes strategic actions to be taken at all levels of the organization.
- Together, the strategic and operational plans guide budget prioritization and serve as a basis for evaluation of the research and resource areas and NanoLund as a whole.

Lund University | Photos by Charlotte Carlberg Bårg, Kennet Ruona, Christelle Prinz and COBE



NanoLund 2025

STRATEGIC PLAN FOR THE CENTER FOR NANOSCIENCE
LUND UNIVERSITY | 2020–2025



NanoLund
CENTER FOR NANOSCIENCE

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Societal challenges we aim to address

ENABLING A SUSTAINABLE SOCIETY

Paradigms and technologies for efficient harvesting and use of energy, and for nanomaterial-based products that are sustainable and safe from a life-cycle perspective. Examples include solar cells based on non-toxic and abundant materials, energy storage, and reduction of pollution.

A PATHWAY TO THE FUTURE INFORMATION SOCIETY

New physical concepts, smart materials, nanoscale devices, sensors and their heterogeneous integration to enable next-generation information technology, including alternative computation, such as quantum, neuromorphic and biological.

PRECISION MEDICINE

Nano- and microstructures for biomedical research at the single-cell level and for fast point-of-care diagnostics, enabling targeted, individualized therapy. Examples include biomarker detection, recording of single neurons, and sorting and manipulating cells for diagnostic and therapeutic applications.

INTERACTION WITH BUSINESS AND SOCIETY

Collaborate with the private and public sectors both locally and internationally to understand needs and translate research results as well as specialized methods into products, services and clinical applications. Together we can achieve sustainable development goals, help solve societal challenges, and create new industry.

The strategic aims we work with

BUILDING AND UNDERSTANDING DEVICES WITH ATOM-LEVEL CONTROL

To realize three-dimensional nanostructures, devices and systems with atom-level control, and to gain deep understanding of their physical, chemical, and/or biological interactions by modeling and characterizing them at all relevant length- and time scales.

PIONEERING SCIENCE

To make fundamental scientific discoveries that increase our understanding of the world and that form the basis for finding new paradigms and device concepts, for example based on quantum phenomena or on fluctuations in small systems.

NANOTECHNOLOGY APPLICATIONS

To invent and engineer devices with enhanced performance and new capabilities for energy, ICT, sensing and diagnostics, building

on safe use of advanced nanotechnology and on deep understanding of the underlying science.

A GREAT PLACE TO DO NANOSCIENCE

To be an international, highly visible nanoscience center that offers exceptional scientific opportunities, training, and career development. To create state-of-the-art clean room facilities and space designed for close interactions within NanoLund, with scientists at Lund Laser Centre, MAX IV and ESS, and with students at all levels in Science Village.

INTERACTION WITH SOCIETY

To be a leader in building an ecosystem that integrates education, interdisciplinary research, R&D, and private-public collaboration to exchange ideas and to promote innovation that improves our society.

How we aim to contribute to society at large

- Identifying and developing applications of nanoscience that make a positive impact on society and help address the United Nations' Sustainable Development Goals;
- Engineering new technology, engaging with industry, and translating results into products and clinical applications;
- Communicating about our research findings and about the societal impact and potential of nanoscience to the scientific community, the public and decision makers;
- Educating individuals to a high level of technical skill, scientific insight, ethical standards, and understanding of questions of sustainability;
- Contributing to diversity and gender equality through recruiting, mentoring and career development;
- Building on past investments, take new initiatives for long-term investments that will enable future breakthroughs;
- Performing excellent scientific research for the sake of scientific insight and for the benefit of society.



Our research environment

AT THE FOREFRONT OF NANOSCIENCE

NanoLund shall be at the forefront of pioneering new research directions and contributing to high-quality nanoscience and nanotechnology at the international level.

A GREAT PLACE TO DO NANOSCIENCE

NanoLund aspires to be an open and creative environment that encourages collaboration, mutual inspiration and support, the sharing of knowledge and an open attitude, and that offers ideal opportunities for education and career development.

COHERENT KNOWLEDGE ENVIRONMENT

As a Strategic Research Area, NanoLund is a cross-disciplinary knowledge environment that encompasses and integrates education, basic and applied research, innovation, and commercialization.

Contributing to sustainable development

We are passionate about addressing the world's challenges. Our research helps to achieve a wide range of the SDGs – the United Nations' Sustainable Development Goals:

- SDG 3: Address infant mortality, reduce diseases, ensure accessible health care, and reduce risks for exposure to toxic materials
- SDG 6 and 14: Effective water purification, reduced pollution
- SDG 7: Increased share of renewable energy through energy efficiency and enabling improved infrastructure
- SDG 8: Workplace safety
- SDG 10: Equality

- SDG 12: Sustainable practices including concerning waste generation and management with a life-cycle perspective.



Who we are: our core values

Our core values represent our joint vision of the culture we wish to have for NanoLund, and our view on how we can achieve this culture through our individual actions. They serve as a guide in making small and large decisions.

OPENNESS is about being inclusive and welcoming of diversity of people and ideas. We work towards a safe environment of mutual trust and respect in which we can share and freely exchange ideas and knowledge to bring out the best in each of us. Only by being open can we be a great place to do nanoscience.

ENTHUSIASM is about inspiring and driving each other to being at the forefront of nanoscience. We approach our tasks with positive energy and commitment, and we encourage and enable each other to overcome challenges.

BEEING PIONEERING is about combining creativity with resourcefulness and excellence to pursue impactful nanoscience and nanotechnology for the future. To advance fundamental science and to address societal challenges, we explore new approaches, select the most promising ones, and aim for deep scientific understanding.