

CV of Lars Samuelson

Lars Samuelson obtained his Ph.D. in Solid State Physics at Lund University in 1977 working in the area of optical properties of deep levels. After a post-doc at IBM Research Laboratories in San José, California, where he did research on electro-optical devices and band-structure calculations, he returned to Lund in 1979. At this stage he set up the first MOCVD-laboratory in northern Europe, using this to study defects in semiconductor alloys. In 1981 he was promoted to Associate Professor (Docent) at Lund University and in 1986 he became Professor in Semiconductor Physics at Chalmers/Göteborg University. He returned to the Physics Department of Lund University in 1988 to take up the Professorship in Semiconductor Electronics. He is the Founder of the Nanometer Structure Consortium, started in 1988 and today a primary center for Nanoscience in Sweden. In 2005, his research team was selected as one of the top-ten research environments in basic science in Sweden, with a research program called "Nanowires for Fundamental Materials Science and Quantum Physics and for Applications in Electronics, Photonics and in Life-Sciences". Together with Stephanie Reimann, he was the leader the Linnaeus Center "Nanoscience and Quantum Engineering". In January 1st, 2010, he became the leader of a major national Strategic Research Area (SFO) effort in the area of Nanoscience and Nanotechnology, with the title nmC@LU (the Nanometer Structure Consortium at Lund University). Today he is the Vice-Director of this center, which was recently re-named as NanoLund, engaging about 250 scientists active in the three faculties: the Engineering Faculty, the Natural Science Faculty, and the Medical Faculty.

In 2001/2002 he took the initiative to create a new university degree program in "Engineering Nanoscience" at LTH/LU, which started in the fall 2003. This is, for Sweden, a unique 5-year education program, merging basic mathematics and physics with materials science, devices and life-sciences, leading to focused Master-level studies in one of the areas: Nanobiosciences, Nanomaterials, Nanoelectronics/photonics or Nanophysics.

Lars Samuelson is internationally recognized for his research on low-dimensional structures and the physics and applications made possible by these structures. In the 1990s this primarily involved: (i) studies of self-assembly of quantum dots and studies of physical phenomena via single-quantum-dot spectroscopy, and (ii) the realization of quantum devices by manipulation of pre-fabricated nanostructures. In recent years his research has been directed towards new ways for the formation of ideal one-dimensional semiconductor nanowires through self-assembly, their physical properties, and applications of semiconductor nanowires in electronics, photonics and the life-sciences.

Lars Samuelson is the Founder and Chief Scientific Officer (CSO) of four start-up companies engaged in technology development and commercialization of the nanowire technology, in QuNano AB, GLO AB, Sol Voltaics AB and Hexagem AB, all active in the Ideon Science Park in Lund.

He is Fellow of the Institute of Physics, FInstP, in the United Kingdom, Fellow of the American Physical Society (Materials Physics), Member of the Royal Swedish Academy of Sciences (Physics class) and Member of the Royal Swedish Academy of Engineering Sciences. In 2008 he was appointed "Einstein Professor" by the Chinese Academy of Sciences, in 2013 he was awarded the IUUSTA Prize for Science for the Triennium 2010-2013 and in 2014, the Fred Kavli Distinguished Lectureship in Nanoscience.

Samuelson is the author of well over 600 articles in refereed journals (h-index 80), and has given more than 300 plenary/invited talks at international conferences and workshops. Examples of plenary/keynote talks given at international conferences, workshops/schools during the last 10 years are listed below:

- "From basic nanowire science to opportunities in photovoltaics", IEEE-PVSC-conference, Washington, DC, USA (June 2017). *Keynote*
- "Semiconductor nanowires as enablers of novel functional materials and devices", Lawrence Workshop on Solid State Technology, Arizona State University, Tempe, AZ, USA (February 2017). *Keynote*
- "NANOWIRE R&D – from exploratory research to energy-related applications", Symposium "Research for the Global Energy Transformation", Freiburg, Germany (November 2016). *Keynote*
- "Nanowire-based Materials for Optoelectronic Applications", The Intern. Nano-Optoelectronics Workshop – iNOW, Munich, Germany (July 2016). *Keynote*
- "Nanowire-based Technologies for Electronics, LEDs and Solar-cells", ALD2016, 16th Intern. Conf. on Atomic Layer Deposition, Dublin, Ireland (July 2016). *Opening Plenary*
- "Nanotechnology providing efficient lighting and solar energy to the world", Symposium on "The Power of Sustainable Energy" – the Bridge, Lund, Sweden (June 2016). *Keynote*
- "From basic nanowire materials research to real-world applications", Workshop on Nanoscience and Technology, Wuhan, China (April 2016). *Keynote*
- "From basic nanowire research to real-world applications", NanoSpain 2016, Logrono, Spain (March 2016). *Keynote*
- "From basic nanowire research to real-world applications", NanoPortugal 2016, Braga, Portugal (February 2016). *Keynote*
- "GaN Nanowire-based light emitting diodes", SPIE – Photonics West, San Francisco, USA (February 2016). *Keynote*
- "GaN Nanowire-based Polychromatic LEDs - from UV to Red", ForumLED Europe, Lyon, France (December 2015). *Keynote*
- "NANOWIRES – from Basic Materials Research to Real-World Applications", NANO5 – International Seminar on Nanoscience and Nanotechnology, Havana, Cuba (September 2015). *Plenary*

- "Nanotechnology adding value to packaging", Packbridge Research Forum, Medicon Village, Lund, Sweden (May 2015). *Keynote*
- "Nanowires - basic materials science creating real-world applications", Nanoelectronic Days 2015, "Green-IT", Jülich, Germany (April 2015). *Keynote*
- "NANOWIRES – Materials Research for Real-World Applications", KAUST Research Conference on Functional Nanomaterials: Design, Synthesis, and Applications, King Abdulla University of Science and Technology, Thuwal, Saudi Arabia (March 2015). *Plenary*
- "*Nanowires for Optoelectronics and Energy Applications*", NanoFIS – 1st Int. Conf. on Functional Integrated nano-systems, Graz, Austria (December 2014). *Keynote*
- "NANOWIRES – from Basic Materials Research to Real-World Applications", Fred Kavli Distinguished Lectureship in Nanoscience Award, MRS-Boston, Boston, USA (November 2014). *Opening Plenary*
- "Nanowires as a Generic Technology for Basic Science and Future Applications", "30th Panhellenic Conf on Solid-State Physics and Materials Science", Heraklion, Greece (September 2014). *Opening Plenary*
- "Nanowires as a Generic Technology for Science and Applications", NSS-8 "Int. Workshop on Nanoscale Spectroscopy and Nanotechnology", Chicago, USA (July 2014). *Keynote*
- "Nanowire-based LEDs and Photovoltaics", CLEO-2014: Topic "LEDs, Photovoltaics and Energy-Efficient ("Green") Photonics", San José, USA (July 2014). *Plenary*
- "NANOWIRE Research & Development: Fundamental Nanoscience generating Cleantech companies", Cleantech Forum Europe, Stockholm, Sweden (May 2014). *Opening Plenary*
- "Semiconductor nanowires: from basic materials research to industrial efforts", NanoIsrael 2014, Tel Aviv, Israel (March 2014). *Plenary*
- "AEROTAXY and other unusual approaches to nanowire growth", 7th nanowire growth workshop – 7th NWGW, Lausanne (June 2013). *Opening Plenary*
- "Nanowire-based Light-Emitting Diodes", Opto-session of SPIE Photonics West, San Francisco (February 2013). *Keynote*
- "Semiconductor nanowires for optoelectronic and energy applications", 24th General Conf of the Cond. Matter Div. of the European Physical Society, Edinburgh (September 2012). *Plenary*
- "Semiconductor nanowires as a generic materials technology for optoelectronics, energy and life-science applications", ECIS 2012, 26th Conf. of the European Colloid and Interface Society, Malmö (September 2012). *Plenary*
- "III-V and III-nitride nanowires for optoelectronic and energy applications", 20th Intern Symposium NANOSTRUCTURES: Physics and Technology, Nizhny Novgorod, Russia (June 2012). *Opening Plenary*
- "Progress in Materials Physics Enabling Novel Physics and Devices",

2012 KAST-RSAS Bilateral Symposium, Seoul, Korea (May 2012). *Keynote*

- "Recent progress in nanowire-based nano-optical devices", ICN+T Intern. Conference on Nanoscience & Technology, Beijing, China (September 2011). *Plenary*
- "Semiconductor nanowires: from Materials Physics to Device Applications", MANA/NIMS Intern Symposium 2011, Tsukuba, Japan (March 2011). *Keynote*
- "Ten Years with III-V Nanowires: A Transformation from Exploratory Materials Physics to Real-World Applications", 473rd Wilhelm and Else Heraeus Seminar "III-V Nanowires – Growth, Properties, and Applications, Bad Honnef, Germany (February 2011). *Opening Plenary*
- "III-V Nanowires and their Potential for Integration with Silicon", 3rd International Conference NANOSENS2010, Vienna, Austria (December 2010). *Opening Plenary*
- "Semiconductor Nanowires: a Generic Approach Towards Novel Materials Physics and Devices", Nanoscience Days 2010, Jyväskylä, Finland (October 2010). *Plenary*
- "Semiconductor Nanowires: a Generic Approach Towards Novel Materials Physics and Devices", 2nd Nanotech@NTNU Kavli-Award Symposium, Trondheim, Norway (September 2010). *Keynote*
- "NANOWIRES: a thin thread linking basic materials physics to nano-devices", Conference Plenary Session of ICN+T, Beijing, China (August 2010). *Plenary*
- "Epitaxial nanowires for electronics and photonics applications", Lawrence Symposium on Epitaxy, Scottsdale, AZ, USA (February 2010). *Opening Plenary*
- "Semiconductor nanowires as a bottom-up approach to realize nanoelectronic and nanophotonic devices", 3rd IEEE International NanoElectronics Conference 2010 – INEC2010, Hong Kong (January 2010). *Keynote*
- "Epitaxial III-V Nanowires for Physics, Nanoelectronics and Nanophotonics", ICON2009 - The 3rd International Conference on One-dimensional Nanomaterials, Atlanta, Georgia, USA (December 2009). *Plenary*
- "Semiconductor Nanowires for Nanoelectronic and Nanophotonic Devices", International Symposium on Quantum Nanophotonics and Nanoelectronics, ISQNN2009, Komaba, Tokyo, Japan (November 2009). *Plenary*
- "Nanowires as a Bottom-up Approach for Electronic and Photonic Devices", 35th International Conference on Micro & Nano Engineering, MNE2009 Ghent, Belgium. (October 2009). *Plenary*
- "Self-assembling Semiconducting Nanowires for Electronic Device Applications", NanotechEurope-2009, Berlin, Germany (September 2009). *Keynote*
- "Nanowire Optoelectronics", 2009 IEEE/LEOS International Conference

on Optical MEMS and Nanophotonics, Clearwater Beach, Florida, USA (August 2009). *Plenary*

- "Semiconductor Nanowires for Physics, Electronics and for Renewable Energy Challenges", Nano and Giga Challenges in Electronics, Photonics and Renewable Energy, Hamilton, Canada (August 2009). *Plenary*
- "Self-assembling Nanowires in Electronics, Photonics and Life-Sciences", 2008 International Institute for Nanotechnology Symposium, Evanston, IL, USA (November 2008). *Plenary*
- "Semiconductor Nanowires: from Materials Science to Photonic & Electronic Devices", IEEE Nanotechnology, Materials and Devices Conference 2008. IEEE-NMDC2008, Kyoto, Japan (October 2008). *Plenary*
- "Nanowires: from Materials Science to Nanophysics and Nanodevices", JVC-12/EVC-10/AMDVG-7, Balatonmadi, Hungary (September 2008). *Plenary*
- "Growth, physics and applications of semiconductor nanowires", 15th Int Conf on Superlattices, Nanostructures and Nanodevices – ICSNN2008, Natal, Brazil (August 2008). *Plenary*
- "Semiconductor nanowires as an approach towards electronic and photonic devices", 20th Indium Phosphide and Related Materials Conference (IPRM2008), Versailles, France (May 2008). *Plenary*
- "A narrow-minded approach to materials science and device physics", Intl Conf on Nanoscience and Nanotechnology – ICONN2008, Melbourne, Australia (February 2008). *Plenary*
- "Opportunities for nanowires in nanoelectronics and nanophotonics", Frontiers in Nanoscale Science and Technology (FNST2008), Basel, Switzerland (January 2008). *Plenary*