

# *Curriculum vitae – Per Delsing*

## 1. Higher education degrees

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Lund Institute of Technology (LTH), Lund Sweden. Engineering physics, and Eidgenössische Technische Hochschule (ETH), Zürich, Switzerland. Physics.  
Diploma work on: Heavy Fermion Superconductivity.  
Graduated April 1984

## 2. Doctoral degree

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Chalmers University of Technology, Göteborg Sweden. Experimental Physics.  
Doctoral thesis: Single Electron Tunneling in Ultrasmall Tunnel Junctions.  
Supervisor: Tord Claeson.  
Graduated June 1990

## 3. Docent competence

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Chalmers University of Technology and Göteborg University, March, 1994.

## 4. Present employment

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Full Professor, 1997-06-01  
Chalmers University of Technology, Microtechnology and nanoscience  
Distinguished professor, 2016-01-01  
Appointed by the Swedish research council

## 5. Previous positions and appointments

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From January 1, 1991, Assistant Professor (“Forskarassistent”), Dep. of Physics, Göteborg University.  
From November 1, 1994, Associate Professor (“Lektor”), Dep. of Physics, Göteborg University. Leave of absence from July 1, 1995.  
From July 1, 1995, NFR research position, Dep. of Physics, Göteborg University  
From 1998-2009 Distinguished visiting scientist at Jet Propulsion Laboratory, Caltech, Pasadena CA, USA  
  
1997-2003, Deputy head of Dep. at Microelectronics and Nanoscience, School of Physics and engineering Physics, Chalmers University of Technology and Göteborg University  
2003-2006, Head of the Laboratory of Quantum Device Physics at the dep. of Microtechnology and Nanoscience, MC2, Chalmers University of Technology  
2010 Director for the area of advance of Nanotechnology and nanoscience at Chalmers Univ. of Techn.

## 6. Supervision of PhD students, Post-Docs

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### **Supervision of 19 PhD students to their PhD graduation**

- Chiidong Chen, 9403, Dynamics of vortices and charges in 2-D arrays of small Josephson junctions
- Peter Wahlgren, 9812, The radio-frequency Single Electron Transistor and the horizon picture for tunneling
- Torsten Henning, 9902, Charging effects in nanofabricated Niobium structures.
- Tobias Bergsten, 0106, Coulomb blockade thermometry and other aspects of tunnel junction arrays
- Edgar Hürfeld, 0306, Mesoscopic effects in Andreev transistors
- Linda Olofsson, 0306, Nanofabrication of single electron transistors and evaluation of miniature biosensors
- Kevin Bladh, 0502, Quantum Coherence in the single Cooper-pair Box
- David Gunnarsson, 0505, The Single Cooper Pair Box: a Quantum-Mechanical Electronic Circuit
- Henrik Brenning, 0605 Fabrication and characterization of aluminum single electron transistors for scanning probes.
- Jonas Bylander, 0710, Time-resolved detection of temporally correlated, single-charge tunneling
- Sergey Kafanov, 0810, Noise properties of single electron transistors.
- Martin Sandberg, 0910, Fast-tunable resonators and quantum electrical circuits

- Fredrik Persson, 1006, Fast dynamics and measurements of single charge devices
- Martin Gustafsson, 1204, Studies of acoustic waves, noise and charge pumping using single-electron devices
- IoChun Hoi, 1309, Quantum optics with propagating microwaves in superconducting circuits
- Simon Abay, 1311, Charge transport in InAs nanowire devices
- Arsalan Pourkabirian, 1412, Probing quantum and classical noise in nano circuits
- Michael Simoen, 1512, Parametric interaction with signals and the vacuum
- Philip Krantz, 1605 The Josephson parametric oscillator – From microscopic studies to single shot qubit readout.

Presently supervising 5 PhD students.

#### **Close collaboration with Post-docs**

- ChiiDong Chen, Research Fellow, Academia Sinica, Taipei, Taiwan
- Vladimir Krasnov, Full professor, Stockholm University, Sweden
- Hiroshi Shimada, Associate Professor, U. of Electro Communications, Dept Appl Phys Chem, Tokyo, Japan
- Yoshinao Mitzugaki, Associate Professor, U. of Electro Communications, Dept Elect. Eng. Tokyo, Japan
- Timothy Duty, Associate Professor at the University of New South Wales, Sydney,
- Christopher Wilson, Associate Professor, University of Waterloo, Canada
- Kyle Sundquist, Research associate, Texas A&M, USA
- Mathieu Pierre, Assistant professor, INSA Toulouse and LNCMI, France
- Tauno Palomaki, Research Scientist, University of Washington, WA USA

## **7. Honors and Commissions of trust**

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### **Awards**

- 1991 The SKF-Chalmers award, SKF
- 1993 “Lidbomska belöningen”, The Royal Swedish Academy of Sciences (KVA)
- 1994 “Regeringens forskningsberednings pris till unga forskare”, The Swedish Ministry of Education
- 1999 The Göran Gustavsson prize in physics, The Göran Gustavsson foundation (GGS)
- 2006 The Edlund prize, The Royal Swedish Academy of Sciences (KVA)
- 2009 The Gustav Dalén Medal, Chalmers Alumni Association (CING)
- 2010 Advanced Research Grant, European Research Council, (ERC)
- 2012 Wallenberg Scholar award, Knut and Alice Wallenberg Foundation(KAW)
- 2015 Distinguished professor, The Swedish research council (VR)

Member of the Royal Academy of Engineering Sciences since 1999

Member of the Royal Academy of Sciences since 2007

Member of the Royal Society of arts and Sciences in Göteborg since 2007

Member of the Nobel committee for Physics, 2007-2015

Chairman of the Nobel committee for Physics, 2014

Fellow of the American Physical Society, 2015

Distinguished Professor, appointed by the Swedish research council 2016-2025

Coordinator Wallenberg project “Quantum states of photons and relativistic physics on a chip” 2015-2019

Coordinating the successful application for Chalmers strategic faculty grant on Nanotechnology 2009-2014

Director for the VR-funded Linnaeus center for “Engineered Quantum Systems” 2006-2016

Coordinator for the EU-project ACDET-2, 2009

Coordinator for the SSF funded Nano-X project, Nanosens, 2006-2011

Director for the SSF-funded Strategic research center on Nanodevices and quantum computing, 2003-2007

Coordinator for the EU-project: TMR/Superconducting nano-circuits 1997-2000

Principle investigator for approximately 15 funded Swedish research grants.

Partner in EU-projects: ESPRIT/SETTRON, ESPRIT/CHARGE, TMR/Superconducting nano-circuits, IST/SQUBIT, GROWTH/COUNT, IST/SQUBIT II, IST/RSFQubit, IST/ACDET-2, IST/EuroSQIP, IST/SCOPE, SOLID, SCALEQIT, PROMISCE, SAWTrain

Guest editor for the proceedings of: Electron transport in mesoscopic systems, J. Low Temp. Phys. **118** (2000)  
Guest editor for: Condensation and Coherence in Condensed Matter - Proceedings of the Nobel Jubilee  
Symposium Physica Scripta **T102**, (2002)  
Associate editor, Quantum Information & Computation (2001-2009)  
Chair for the 28 International conference on Low Temperature Physics (LT28) Aug. 9-16 2017.

Member of the scientific council, Knut and Alice Wallenberg foundation, (2014 - )  
Member of the Scientific advisory board for South East Physics network (SEPnet), a consortium of six Physics departments in the South East of England. 2010-2013  
Member of the Local Scientific Council of Universeum (Swedens national science discovery centre) 2006-2009  
Vice- chair of the SSF-materials and microelectronics evaluation group for INGVAR-2 grants 2004-2005  
Vice- chair of the VR NT-P evaluation group for engineering physics. 2004.

Member of the evaluation committee of SPEC at CEA Saclay, 1999, 2003, 2007  
Member of the evaluation committee of Center of Excellence Copenhagen University 2016  
Evaluator of full professorships: Jyväskylä (Finland), Trondheim (Norway), TUD Lyngby (Denmark)  
Evaluator for promotion to full professor and Senior Scientist at TU Delft, UC Berkeley, MIT, Copenhagen University, Aalto University, Royal Institute of Technology

**Faculty opponent or Committee member on 12 Ph.D. defenses:**

Jyväskylä University, Finland, 1998, J. Kauppinen,  
TU Delft, Netherlands, 1998, A. van Oudenaarden  
University of Copenhagen, Denmark, 2000, S. Pederssen  
TU Delft, Netherlands, 2005, A. ter Haar  
CEA Saclay, France, 2005, G. Ithier  
ETH Zürich, Switzerland, 2009, M. Göppl,  
TU Delft, Netherlands, 2009, F. Paauw  
Helsinki University of Technology, Finland, 2009, A. Kempinen  
Royal Institute of Technology, 2013, Sweden Adem Ergül  
CEA Saclay, France, 2015, Olivier Parlavecchio  
Aalto University, Finland, 2016, Pasi Läthenmäki  
CEA Saclay, France, 2016, Camille Janvier

Member of 7 additional thesis committees in Sweden

## 8. Research description

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PDs research interest is focused on Experimental Mesoscopic Physics in general and on Single electronics and Quantum computing in particular. He has investigated a large variety of mesoscopic systems, the following is a brief account of the research

- Coulomb blockade and Single electron tunneling
- DC- and RF-Single Electron Transistors
- Low frequency noise
- 1D- and 2D-arrays of small tunnel junctions
- Charge solitons
- Coulomb blockade thermometry
- Andreev physics
- Qubits and quantum information
- Single electron counting
- Tunable microwave cavities
- Quantum optics on chip
- Dynamical Casimir effect
- Quantum Acoustics

## 9. Invited Talks and Publications (Source ISI)

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More than 100 invited talks at international conferences.

Total number of publications 169

Total number of citations 5606

High impact papers 2xNature, 3xScience, 26xPRL, 3xNature Physics, 5xNanoLetters,

h-index 40

<http://www.researcherid.com/rid/F-7288-2010>

<http://scholar.google.se/citations?user=R3GBTRwAAAAJ>

## 10. Other

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Born 14 August 1959 in Umeå Sweden, Swedish citizen, Married to Désirée Delsing, four daughters.

**Languages:** Swedish: Native, English: Fluent, German: Good, French: Studied for two years

**Military Service:** 15 months, 1978-1979, Second lieutenant

**Personal number:** 590814-8579