

MARIA TENJE

CURRICULUM VITAE

PERSONAL INFORMATION

Full name: Karin Maria Tenje (née Nordström)

Date of birth: 12th January 1979

Citizenship: Sweden

Family: Married to Niklas Tenje, Axel born January 2008

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RESEARCH INTERESTS

- Cantilever-based sensing; *pushing the limits for biosensors with respect to detection limits and speed*
- Cleanroom micro- and nanofabrication; *realising thin polymer structures and developing novel fabrication methods for polymer processing*
- Biosensing; *developing new schemes for detection of low-molecular-weight compounds*
- Surface stress analysis; *understanding the force transduction principle of cantilever sensing in the quest for new fundamental knowledge*
- Developing new experimental platforms; *expanding the cantilever readout mode with further detection principles for increased reliability and flexibility*

Apart from being a dedicated and methodic researcher, I also have a flair for project management and time effective planning. I enjoy working in inter-disciplinary projects and in team-oriented environments. I consider myself a good leader. I have a dream to one day see the technology developed in my research be turned into a commercial product. However, before that I wish to achieve academic independence and start my own research group.

ACADEMIA

Oct 2008 – Present: Assistant Professor, Technical University of Denmark, Lyngby, Denmark My research project was started during my PostDoc time but now I also have teaching responsibilities. Course responsible for “33255 Micro and Nano fabrication”.

2007 – 2008: PostDoc, Technical University of Denmark, Lyngby, Denmark
(Maternity leave November 2007 – September 2008)

Project title: “Analytical system for direct detection of low-molecular-weight-compounds”

Collaborators: Professor Anja Boisen, Department of Micro and Nanotechnology, Technical University of Denmark and Professor Mats Ohlin, Department of Immunotechnology, Lund University

2004-2007: PhD, Technical University of Denmark, Lyngby, Denmark

Thesis title: "Integrated optical read-out for polymeric cantilever-based sensors"

Supervisors: Professor Anja Boisen, Department of Micro and Nanotechnology, Technical University of Denmark, Associate Professor Jörg Hübner, Department of Micro and Nanotechnology, Technical University of Denmark and Dr. Montserrat Calleja, Biosensors group, The Madrid Institute of Microelectronics, CNM-CSIC, Madrid, Spain.

Awarded Best Dissertation at DTU in 2007 by the Dean of Research.

2003-2004: MSc Physics, Lund University; Lund, Sweden

Thesis title: "Fabrication of cantilever chip with complementary micro channel system in SU-8 for biochemical detection". Supervisors: Dr. Montserrat Calleja, Institute of Micro and Nanotechnology, Technical University of Denmark and Associate Professor Carl-Erik Magnusson, Department of Physics, Lund University

1999-2002: BSc Physics, Imperial College of Science, Technology and Medicine; London, UK. Final Grade: Honors Class 1:2.

1997-1999: A-levels, Colombo International School; Colombo, Sri Lanka

Final Grades: Mathematics: A, Physics: B, Biology: B.

AWARDS & PRIZES

2010: Received the 'For women in science' Denmark national fellowship from L'Oréal-UNESCO. The jury comprises members of The Royal Danish Academy of Sciences and Letters.

2007: Awarded *Best PhD Dissertation at DTU in 2007*, Technical University of Denmark.

2006: 3rd place in phase 3 of Venture Cup covering the whole of Denmark. Participated with the team PolyCan, prize sum of DKK 50,000.

2005: Winner of phase 2 of Venture Cup. Participated with the team PolyCan, 1st prize of DKK 10,000.

2005: Winner of phase 1 of Venture Cup. Participated with the team PolyCan, 1st prize of DKK 5,000.

2005: PolyCan winning team of McKinsey pitching competition, 1st prize of DKK 5,000

1998: *Drama & Music Prize*, Colombo International School; Sri Lanka.

FUNDING

2010: PhD studentship, Co-applicant with Jenny Emnéus (DTU Nanotech). Full funding obtained from Technical University of Denmark.

2010: Network funding, Main applicant. L'Oréal-UNESCO *For Women in Science*, Denmark, DKK 100,000

2009: Project funding, *NAMEC – VKR Centre of Excellence*, Co-applicant with Anja Boisen (main applicant), Søren Dohn, Mogens H. Jakobsen, Kristoffer Almdal (DTU Nanotech), Martin Bendsøe, Anton Evgrafov, Mads Peter Sørensen (DTU Maths), Viktor Krozer (DTU Electro), Anette Müllerts (Farma, Copenhagen University). Villum Kann Rasmussen foundation, Denmark, DKK 28,000,000

2009: Conference stipend, Main applicant. Otto Mønsted Fond, Hellerup, Denmark, DKK 4,350.

2008: Apparatus funding, Main applicant. Lundbeck foundation, Denmark, DKK 584,692

2007: Project funding, Co-applicant with Fabien Amiot (main applicant, CNRS, France) and Søren Dohn (MIC, DTU). Ambassade de France, Denmark, € 2,000

2007: International Networking for Young Scientists (*INYS 2008*): funding for hosting of workshop on nanotechnology in Copenhagen March 2008. Co-applicant with Anja Boisen (main applicant, MIC, Denmark), Rachel McKendry (LCN, UK) and Moyu Watari (LCN, UK). British Council, DKK 110,000

2007: Conference stipend, Main applicant. Otto Mønsted Fond, Hellerup, Denmark,

DKK 5,000

2006: Project funding, Main applicant. PostDoc stipend: ‘Analytical system for direct detection of low-molecular-weight compounds’. Danish Research Council for Technology and Production, Project no. 274-06-0304, Denmark, DKK 2,034,000

2005: Conference stipend, Main applicant. Otto Mønsted Fond, Hellerup, Denmark, DKK 3,450

2003: Project funding, Main applicant. PhD stipend: ‘Fabrication of polymeric cantilevers with integrated optical read-out’. Technical University of Denmark, Kgs. Lyngby, Denmark

TEACHING EXPERIENCE

2010-Present: Co-supervisor for PhD student Letizia Amato on the project “3D carbon electrodes for bio fuelcells”. The student is funded by a DTU PhD stipend. Main supervisor: Prof. Jenny Emnéus, Bioanalytics group, DTU Nanotech.

2010: Two 3-week-students on the project “Design of biochip membrane for analysis of cellular membranes”. The students also participated in *Grøn Dyst* at DTU.

2010-Present: Co-supervisor for PhD student Xueling Quan on the project “Development of mechanical biosensor for metabolomics”. The project is part of the *NAMEC – VKR Centre of Excellence* initiated in 2009. The project is focused on combining nanomechanical and electrochemical methods for the detection of drug metabolites.

2009: Course responsible and teacher for 33255: *Mikro- og Nanofabrikation*. This is a course in the *Physics and NanoEngineering* MSc programme at DTU. The course has ~50 participants. My active part was in the planning of the course and teaching and giving lectures, helping during problem classes, coordinating projects and setting up the exam. The work was done together with Erik V. Thomsen at DTU Nanotech.

2009-2010: Supervisor for Erasmus BSc student Isaac Rovira Alcóon on the project “Immobilisation and detection of carbohydrate bindin”.

2008: Supervisor for MSc student Julia Ivanova on the project “Nanomechanics for cancer detection and biomolecular recognition”. The project ran as collaboration with Assoc. Prof. Martin Dufva, DTU Nanotech and Prof. Henrik Clausen, Department of cellular and molecular medicine, University of Copenhagen.

2008: MSc student Noriyuki Masuda at DTU doing a 5 ECTS point course on “Investigation of topography and electrical properties of Au thin films”. The project involved cleanroom fabrication of test samples and characterisation by AFM, CV and EIS.

2007-Present: Co-supervisor for PhD student Lee Fischer on the project “Hybrid MEMS sensor for heavy metal ion detection”. The project is run as collaboration with Grundfos DK A/S and focuses on electrochemical methods for ion detection in drinking water.

2007: BSc student Daniel Eils from Clemson University, Clemson, USA doing a 6-week-project at MIC, DTU entitled “Design and fabrication of SU-8 cantilever chips”.

2005/2006: Supervisor for MSc student Katrin Sidler from ETH, Zurich, Switzerland on the project “Fabrication and characterization of SU-8 cantilevers with integrated tips designed for dip-pen nanolithography”. The project was ran as collaboration with Dr. Dimitrios Stamou, Nano Science Centre, University of Copenhagen.

2005: Four students for 3-week-projects, MIC, DTU.

2003: Working as a high school teacher in Simrishamn, Sweden. Responsible for teaching natural sciences. Course planning, designing laboratory experiments and writing exams.

ACADEMIC SERVICES

2009: Member of the Scientific Steering Committee of the 5th *International workshop on Nanomechanical sensors*, Banff, Canada, May 26-28 2010.

2009: Member of the International Program Committee for the 35th *International Conference on Micro- and Nano-engineering (MNE 2009)*, Ghent, Belgium.

2008: Member of the International Program Committee for the 34th *International Conference on Micro- and Nano-engineering (MNE 2008)*, Athens, Greece.

2007-Present: Associated Editor of *Journal of Sensors*, Hindawi Publishing Corporation.

2007-2008: Coordinator of local organising committee for the workshop *International Network for Young Scientists (INYS 2008)*, Copenhagen, Denmark, March 5-7 2008. The workshop had approx. 25 participants.

2007-2008: Member of the Scientific Steering Committee of the 3rd *International workshop on Nanomechanical sensors*, Mainz, Germany, May 19-21 2008. The workshop had approx. 100 participants.

2007: Chairwoman at the 3rd *Workshop of Nordic Network of Women in Physics (NorWiP 2007)*, Kgs. Lyngby, Denmark, August 16-17 2007. The workshop had approx. 50 participants.

2007: Co-Program Chair and member of the International Program Committee for the 33rd *International Conference on Micro- and Nano-engineering (MNE 2007)*, Copenhagen, Denmark, September 23-27 2007. The conference had approx. 500 participants.

2006: Coordinator for technical support to speakers in the local organising committee for the *International workshop on Nanomechanical sensors*, Copenhagen, Denmark, May 8-12 2006. The workshop had approx. 100 participants.

2005-Present: Reviewer for *Journal of Micromechanics and Microengineering*, Institute of Physics; *Langmuir*, American Chemical Society; *Microelectronic Engineering*, Elsevier; *Sensors Journal*, IEEE and *Applied Surface Science*, Elsevier.

OTHER TRAINING AND QUALIFICATIONS

2009-2010: “Education in University Teaching, Seminar 4: Teaching with focus on learning outcome”, LearningLab DTU, Technical University of Denmark, Denmark. This is the final module in the four-module teaching training required by Assistant Professors at DTU. In this module one is co-responsible and actively teaching in a course given by the institute. I am now active in the course “33255: Micro and Nanofabrication”.

2009: “Education in University Teaching, Seminar 3: Feedback & Evaluation”, 3-day-course, LearningLab DTU, Technical University of Denmark, Denmark. This course is the third module in the four-module teaching training required by Assistant Professors at DTU.

2009: “Education in University Teaching, Seminar 2: Methods & Planning”, 3-day-course, LearningLab DTU, Technical University of Denmark, Denmark. This course is the second module in the four-module teaching training required by Assistant Professors at DTU.

2009: “Teaching & Learning”, 3-day-course, LearningLab DTU, Technical University of Denmark, Denmark. This course comprises the first module in the four-module teaching training required by Assistant Professors at DTU.

2008: “Lyst til ledelse?”, 2 day leadership training course, Technical University of Denmark, Kongens Lyngby, Denmark. I took this course to gain an understanding of what comes with leadership and to develop my leadership skills.

2008: “First Aid/CPR-Children”, 8 hour training on first aid and CPR specifically aimed at children, The Swedish Red Cross, Malmö, Sweden. I took this course to be able to help my son or another child if an accident would happen.

2007: “Epoxy Safety Course”, 2 day safety course about handling epoxies responsibly, Lyngby UddannelsesCentre, Kongens Lyngby, Denmark. This training is compulsory for all persons working with epoxy resists (e.g. SU-8) in Denmark.

2006: “Fire safety course”, 1 day training on how to prevent fires and basic fire fighting techniques, Technical University of Denmark, Kongens Lyngby, Denmark. This training was provided by the institute.

PROJECT MANAGEMENT & LEADERSHIP

- Co-supervision with Prof. Boisen of 2 PhD students (thesis expected Dec 2010 and Jan 2013)
- Supervision of 4 MSc students and 5 BSc students.
- Work package responsible in VKR project (NAMEC, Dec 2009 - Present). The NAMEC project is divided into six work packages where I am coordinating the work on surface stress sensors. Currently 1 PhD student is active in the project, which also involves synergy with several of the other work packages.
- Coordinator of INYS Workshop in Copenhagen, 2008. The workshop was funded by the British Council and we were 25 participants.
- Leadership courses attended at DTU
- Course responsible and teacher for 33255: *Mikro- og Nanofabrikation*. This is a 13-week-course in the *Physics and NanoEngineering* MSc programme at DTU. The course has ~50 participants. My active part was in the planning of the course and teaching and giving lectures, helping during problem classes, coordinating projects and setting up the exam. The work was done together with Erik V. Thomsen at DTU Nanotech.
- Member of scientific steering committee for the Nanomechanical Cantilever Sensors workshop in 2008 and 2010. These workshops have approx. 100 participants.
- Co-Program Chair and member of the International Program Committee for MNE '07 in Copenhagen, 2007. This conference has approx. 500 participants.
- Coordinator for technical support to speakers in the local organising committee for the Nanomechanical Cantilever Sensors, Copenhagen, Denmark, 2006. The workshop had approx. 100 participants.

POSITIONS OF TRUST

2009-2010: Chair of the Board of Brf. Malmöhus nr 1, Malmö, Sweden.
2007-Present: Member of the Collaboration and Safety Committee, MIC, DTU.
2005-2009: Secretary of the Board of Brf. Malmöhus nr 1, Malmö, Sweden.
2000-2002: Treasurer for Scandinavian Society at Imperial College; UK.
1999-2000: Vice President for Scandinavian Society at Imperial College; UK.

PROFESSIONAL MEMBERSHIPS

2009: Member of SIK – *Skånska Ingenjörsklubben, SE*
2005: Member of KIF – *Kvinder I Fysik I Danmark, DK*
2003: Associate Member of *Institute of Physics, UK*
2002: Associate of the *British Royal College of Science, UK*
2000: Member of *Women in Physics, UK*

LANGUAGES

SWEDISH: Mother tongue
ENGLISH: Fluent
DANISH: Fluent

FRENCH: 5 years of study

PUBLICATIONS

14 peer-review journal papers, **3** patent applications and **26** reviewed conference proceedings.
h-index: **8** [ISI Web of Science, June, 2010] Citations: **195** [ISI Web of Science, June, 2010]