

# Curriculum Vitae

Pasqualina M. Sarro, Ph.D.

**Professor Microsystems Technology, Chair Department of Microelectronics  
IEEE Fellow**

**Member of the Royal Netherlands Academy of Arts and Sciences (KNAW)**

**Knight of the Order of the Dutch Lion  
(Ridder in de Orde van de Nederlandse Leeuw)**

**Knight in the Order of the Italian Star  
(Cavaliere dell'Ordine della Stella d'Italia)**

Delft University of Technology  
Faculty of Electrical Engineering, Mathematics, Computer Science (EEMCS) Department  
of Microelectronics  
Electronic Components, Materials and Technology Laboratory (ECTM)

## **Personal:**

Name	Pasqualina Maria Sarro
Date of birth	12 April 1957
Office address	Delft University of Technology ME-ECTM, Feldmannweg 17, 2628 CT Delft
Tel:	+31-15-2787708
e-mail	<a href="mailto:p.m.sarro@tudelft.nl">p.m.sarro@tudelft.nl</a>
website	<a href="http://ectm.tudelft.nl/People/bio.php?id=131">http://ectm.tudelft.nl/People/bio.php?id=131</a>

## **Education**

<i>Oct 83 – Sept 87</i>	Delft University of Technology, Delft, The Netherlands. Ph.D. degree in Electrical Engineering (defense date: 1 October 1987) Thesis title: Integrated silicon thermopile infrared detectors. Promotor: Prod.dr.ir. Simon Middelhoek
<i>Oct 75 - July 80</i>	University of Naples, Naples, Italy. Laurea degree (M.Sc.) in Physics ( <i>magna cum laude</i> ) with specialization in Solid-State Physics (defense date: 16 July 1980) Thesis title: Fabrication and characterization of planar multi-junction silicon solar cells. Advisor: prof. dr. F.P.Califano
<i>Oct 70 - July 75</i>	Scientific Lyceum (High School), Piedimonte Matese, Italy.

## **Professional Activities**

<i>Oct 2009 – Mar 2016</i>	Delft University of Technology, Delft, The Netherlands. Chair of the Microelectronic Department
<i>Jan 2004 – present</i>	Delft University of Technology, Delft, The Netherlands. Head of the Electronic Components, Technology and Materials Laboratory.
<i>Dec 2001 – present</i>	Delft University of Technology, Delft, The Netherlands. Full Professor in Microsystems Technology
<i>Apr 1996 - Dec 2001</i>	Delft University of Technology, Delft, The Netherlands. Associate Professor Responsible within the Delft Institute of Microelectronics and Submicron technology (DIMES) for research in integrated sensor processing, MEMS technologies, electronic material processing and novel micro/nano structures.

Oct 87 – Mar 96	<i>Delft University of Technology, Delft, The Netherlands. Assistant Professor Responsible within the Delft Institute of Microelectronics and Submicron technology (DIMES) for research in silicon micromachining, integrated sensors and electronic materials processing.</i>
Jun 81 – Aug 83	Brown University, Providence, Rhode Island, USA. Post- doctoral Fellow associated with Prof.dr.J.J.Loferski in the Photovoltaic Research Group of the Department of Electrical Engineering. Research Program: Cu-ternary photovoltaic cell fabrication by chemical spray pyrolysis.
Sept 80 – May 81	University of Naples, Naples, Italy. Research Assistant associated with Prof.dr.F.P.Califano in the Semiconductor Devices Group of the Dept. of Electrical Engineering. Research Program: Exploration of new low cost fabrication techniques for silicon solar cells and thin film solar cells.

### **Awards**

- IEEE 2018 Robert Bosch Micro and Nano Electro Mechanical Systems Award, Jan 2018 (for pioneering contributions in novel materials, material integration and innovations in MEMS and strong commitment to education and technology transfer)
- NWO Gravitation grant (Zwaartekracht premie), May 2017, to conduct research in a 7 partner consortium over a 10 years period on “Organs-on-chip” for personalized medicine”(total budget 19.5 M€)
- Knight of the Order of the Star of Italy, December 2015
- Knight of the Order of the Dutch Lion, April 2015
- IEEE 2012 Sensor Council Meritorious Service Award
- Career Award AISEM (Italian Association Sensors and Microsystems) February 2007
- IEEE Fellow, January 2007 (for contributions to micromachined sensors, actuators and microsystems)
- Member of the Royal Netherlands Academy of Arts and Sciences (KNAW), April 2006
- Eurosensors Fellow Award, September 2004 (for contribution in the field of sensor technology)
- A.v.Leeuwenhoek Chair (for research merits) December 2001
- Rudolph Kingslake Medal (The Society of Photo-Optical Instrumentation Engineers) 1997.

### **Other Activities**

- **Scientific Advisory Board ‘Fondazione Bruno Kessler’, (FBK), Trento, Italy (2013-2020)**
- **Nano-Tera Scientific Advisory Board** (Swiss scientific initiative for engineering complex systems in Health, Security and Environment): Research program CHF 60M (2008-2014); second phase (2014-2019)
- **Member of the Royal Netherlands Academy of Arts and Sciences (KNAW) governing board (2008-2011)**
- **Chair Department of Microelectronics TU Delft (2009-2015)**
- **Chair KNAW Applied Sciences (TW) section (2014-2018)**
- **Scientific Council of GOSPEL (Network of Excellence General Olfaction and Sensing Projects on a European Level) Jan 2004 - Dec 2008**
- **Ad Com** of the IEEE Sensor Council (2004-2008)
- **Scientific Director of DISens** (Delft Institute for Intelligent Sensor Microsystems): 2002 - 2006
- **Director (non-executive) MELEXIS** Microelectronic Integrated Systems: 2005-2014
- **Board** of Xensor Integration bv: since April 2007
- **Board of Professors (Raad van Hoogleraren), Delft University of Technology (June 2005-2009)**

### ***Editorships***

- Associate Editor JMEMS (2014-2022)
- Associate Editor IEEE Sensor Journal (2006-2009)
- Editor Proceedings IEEE MEMS 2009
- Guest Editor Special issue IEEE Sensors Journal: vol.3, Issue 5 (Oct 2003) and Issue 6 (Dec2003)
- Editor Proceedings IEEE Sensors 2003 Conference
- Editor Proceedings IEEE Sensors 2004 Conference

### ***International Conferences***

- Tutorial co-chair IEEE Sensors 2017 and IEEE Sensors 2018
- Track Chair IEEE Sensors 2016
- Technical Program EU Chair for Transducers 2015
- General co-chair IEEE Sensors 2014
- General co-chair IEEE MEMS 2009
- Executive Program Committee Transducers Conference 2007, 2009, 2011, 2013
- Member International Steering Committee Eurosensors Conference (since 2003)
- Member International Steering Committee Transducers Conference (since 2009)
- Technical Program co-chair for the First IEEE Sensors Conference, Orlando, FL, USA, Jun 10-14,2002
- Technical Program Chair for the Second IEEE Sensors Conference, Toronto, Canada, Oct 21-24, 2003
- Technical Program Chair for the Third IEEE Sensors Conference, Vienna, Austria, Oct 24-27, 2004
- Subcommittee Chair 28th ESSDERC Conf, Bordeaux, France, 1998 (Sensors, Actuators and Displays)

### ***Member of the Technical Program Committee***

- European Solid State Device and Research Conference (ESSDERC) from 1995 to 2002
- European Conference on Solid State Transducers (EUROSENSORS) from 1999 to 2012
- Eurosensors Conference
- IEEE Optical MEMS Conference 2004, 2005
- IEEE Sensors Conference 2005 & 2006
- IEEE MEMS Conference 2006, 2007, 2008, 2009, 2010
- 14th Intern. Conf. on Solid State Sensors & Actuators (Transducers) 2007
- 15th Intern. Conf. on Solid State Sensors & Actuators (Transducers) 2009
- 16th Intern. Conf. on Solid State Sensors & Actuators (Transducers) 2011
- 17th Intern. Conf. on Solid State Sensors & Actuators (Transducers) 2013
- 18th Intern. Conf. on Solid State Sensors & Actuators (Transducers) 2015

### ***Workshops/Events Organizer***

- Nexus Workshop on "Microsystems: from prototype to product, from investment to profit" (April 1995)
- First Eurosensors School on Fundamentals of Sensor Science and Technology, Delft, The Netherlands, Sept 10-11, 1999.
- Second Eurosensors School on Fundamentals of Sensor Science and Technology, Copenhagen, Denmark, Aug 26-27, 2000.
- Third Eurosensors School on Fundamentals of Sensor Science and Technology, Prague, Czech Republic, Sept 14-15, 2002.
- Fourth Eurosensors School on Fundamentals of Sensor Science and Technology, Guimares, Portugal, Sept 17-18, 2003.
- Fifth Eurosensors School on Fundamentals of Sensor Science and Technology, Rome, Italy, Sept 11-12, 2004.
- Sixth Eurosensors School on Fundamentals of Sensor Science and Technology, Barcelona, Spain, Sept 10-11, 2005.
- Seventh Eurosensors School on Fundamentals of Sensor Science and Technology, Göteborg, Sweden, Sept 17, 2006.

## ***Invited Speaker***

### *Conferences*

- Eurosensors V Conf., Rome, Italy, Sept 30-Oct 2, 1991: "Sensor Technology Strategy in Silicon".
- International Workshop on Silicon Technology, Sensors and Design, Beijing, China, 8-9 November 1994: "Process modules for integrated smart sensors".
- SPIE Conf on Micromachining and Microfabrication, Austin, Texas, USA, Oct.14-15, 1996:"New developments in the integration of micromachined sensors".
- Transducers '99, Sendai, Japan, June 7-10, 1999: "Silicon carbide as a new MEMS Technology".
- Eurosensors XX Conf, "Silicon bulk micromachining: from sub-mm to nm 3D structuring", Goteborg, Sweden, Sept 17-20, 2006 (plenary talk)
- Third International Workshop on Nanophysics and Nanotechnology, "Advanced silicon micromachining for 3D nanostructuring", Halong City, Vietnam, Dec 6-9, 2006.
- XII Conference on Sensors and Microsystems, "Silicon DRIE: a versatile technology for 3D integrated microsystems ", Naples, Italy, Feb 12, 2007 (plenary talk)
- 19th MicroMechanics Europe (MME 2008) "3D Microstructuring of silicon and SU8 polymer for microsystems applications", Aachen, Germany, Sept 28-30, 2008 (plenary talk)
- 19th International Symposium on Micro-Nano Mechatronics and Human Science (MHS 2008), "Advanced 3D Microstructuring for integrated silicon microactuators (plenary)", Proc. 19th International Symposium on Micro-Nano Mechatronics and Human Science (MHS 2008), Nagoya, Japan, Nov 2008 (plenary talk)
- 12th International Workshop on Radiation Imaging Detectors (iWoRiD 2010), "Microsystems Technology developments for 3D integration", Cambridge, UK, July 12, 2010.
- Transducers '11, Beijing, China, June 2011, "The 30 yrs. Transducers Anniversary" (plenary speaker)
- CIMTEC 2012, 4th Int'l Conf. on Smart Materials, Structures and Systems, Montecatini, Italy, June 2012, "ALD as enabling technology for MEMS and NEMS"
- APCOT 2012, 6th Asia-Pacific Conference on Transducers and Micro-Nano Technology, Nanjing, China, July 2012, "ALD a promising technology for MEMS and NEMS" (plenary talk)
- Nanomechanical (NMC) Sensing Workshop, and the Stanford Center for Probing the Nanoscale, May 2013, "Micro/nano sensors for bio-chemical applications: integration challenges and opportunities" (keynote)
- 24th MicroMechanics Europe (MME 2013) "ALD a promising technology for MEMS and NEMS", Helsinki, Finland, Sept 1-4, 2013 (plenary talk)
- Fifth International Workshop on Nanotechnology and Application (IWNA 2015), "C-based materials for MEMS and NEMS", Vung Tau, Vietnam, Nov 11-14, 2015

### *Seminar, Colloquia*

- Hitachi Research Labs, Mito, Japan, May 29, 1987: "Integrated silicon thermopile IR detectors"
- Nippon Steel Corporation, R&D Labs, Kawasaki, Japan, Jun 1, 1987: "Integrated silicon thermopile IR detector arrays"
- IMEC, Leuven, Belgium, Sept 23, 1987: "Integrated silicon thermopile infrared detectors"
- NTT Research Labs, Musashino, Japan, June 11, 1993: "Sensor technology research at DIMES/TU Delft"
- Institute of Metallurgy, Chinese Academy of Science, Shanghai, China, Nov 10, 1994: "Integrated Smart Sensors Processing"
- ETH - Zurich, Switzerland, Aug 12, 1994: "Process Modules for Integrated Smart Sensors"
- Elettronica'95 (XXVII Annual Meeting Italian Electronic Society), Riva del Garda, Italy, June 18-21, 1995: "Technologies for Integrated Microsystems in Silicon"
- Large Area Image Sensors (LAIS) Workshop, Veldhoven, The Netherlands, May 8, 1996: "Processing of silicon radiation sensors"
- IC Colloquium, Philips Nat. Lab., Eindhoven, The Netherlands, Nov 15, 1996: "New technologies for MEMS"
- University of Michigan, Ann Arbor, MI, USA, June 23, 1997: "IC Devices and Processing research at DIMES"
- INSEL'98, Workshop on porous silicon, Naples, Italy Oct 29-30, 1998: "Silicon Micromachining Technologies"

- First Eurosensors School on Fundamentals of Sensor Science and Technology, Delft, The Netherlands, Sept 10-11, 1999: “MEMS Devices, Materials and Technology”
- Second Eurosensors School on Fundamentals of Sensor Science and Technology, Copenhagen, Denmark, Aug 26-27, 2000: “MEMS Devices, Materials and Technology”
- Third Eurosensors School on Fundamentals of Sensor Science and Technology, Prague, Czech Republic, Sept 14-15, 2002. “Microsystems Technology”
- ITC-IRST, Women in Science Lecture Series, Trento, Italy, Nov. 11, 2002: “Micromachining Technology: Adding a third dimension to silicon”
- Materials Colloquium, Philips Research, Eindhoven, The Netherlands, March 24, 2004. “Micromachining Technology: adding a third dimension to silicon”
- 163rd Dies Natalis lecture, Delft university of Technology, Delft, The Netherlands, January 7, 2005. “Microelectronics: a macro world”.
- Sixth Eurosensors School on Fundamentals of Sensor Science and Technology, Barcelona, Spain, Sept 10-11, 2005. “Silicon MEMS and NEMS Technology”.
- KNAW, Amsterdam, “3D silicon micromachining: a versatile technology”, April 27, 2009
- Nikhef, Amsterdam, “Microsystems Technology developments for 3D MEMS”, Dec 3, 2010
- IMEC, Leuven, Belgium, “ALD form MEMS and NEMS”, Nov 28, 2011
- KTH, Sweden, “Heterogeneous Integration”, October 25, 2013
- SKL Changzhou, “MEMS/ Microsystems Technology: an overview”, April 10, 2013,
- Chinese Academy of Science, Beijing, “MEMS challenges and trends”, April 12, 2013
- National Tsinghua University, Taiwan, “MEMS research @ Dimes”, Jan 2013

#### ***Guest Lecturer***

- University of Calabria, Arcavacata di Rende, Italy, Nov 11-12, 1999: Lecture series on “Microsystems”.
- University of Calabria, Arcavacata di Rende, Italy, May 3-4, 2001: Lecture series on “Microsystems: fundamentals, devices and technologies”.
- SISMAISEM School, Lecce, Italy, November 13-14, 2004 Lecture on “Silicon Microsystems Technologies”
- International Master in Nanotechnology, CIVEN, Venice, Italy, June 20-21, 2005. Course on “Silicon MEMS and NEMS Technology”
- Minatec School on Nanomaterials and Nanodevices, “ALD and C-based materials for MEMS and NEMS, Ho Chi Minh City, Vietnam, Nov 9-11, 2015.
- CISM Advanced Course on Electromechanical Transducers: Principles and Technologies, September 9-13, 2019. Lectures on “Micromechanical transducers and systems: introduction to micromachining of miniaturized mechatronic systems (MEMS) fabrication technologies, design rules, device and application examples”.

#### ***Project Leadership***

Applicant or co-applicant for more than 35 research projects, funded by National Research Foundation, EU programs, Ministry of Economic Affairs, Industry

#### ***Students Supervision***

Supervision of more than 50 PhD students and 50 MSc students

#### ***Referee***

##### *Journals*

- Sensors & Actuators
- Sensors & Materials
- IEEE Electronic Device Letters
- IEEE Journal of Micro-Electro-Mechanical Systems

- IOP Journal of Micromechanics and Microengineering
- Journal of the Electrochemical Society

#### *Reviewer*

- The Dutch Technology Foundation (STW)
- The Dutch Ministry of Economic Affairs as international reviewer
- The Belgium Technology Foundation (IWT)
- The Belgian Scientific Research Fund (FWO)
- The Italian Ministry for University & Research, Dept of Economic Affairs (international expert)
- Scientific Evaluator FunMat research center, Sweden, 2011
- ERC Advanced Grant 3rd Call – 2010
- ERC CoG-PE7 panel: Calls 2013, 2015, 2017
- ICREA Foundation, Spain (2020, 2022)
- SFI, Ireland (2020)
- La Caxia Foundation, Spain (2021, 2024)
- Evaluation Panel KTH Research Assessment, Sweden (2021)
- Evaluation Panel Research Council of Norway (2023, 2024)

#### ***Publications***

Author and co-author of more than 280 Journal Publications; 400+ conference papers; 5 Book chapters, 10 patents.

Google h-index: 61

