

Prof. Sabina Merlo (Sabina Giovanna Merlo)

Education and Degrees:

1992 Ph.D. Electrical and Electronic Engineering, University of Pavia (UniPV), Pavia Italy

1989 M.S.E., Bioengineering, University of Washington (UW), Seattle, WA, USA

1987 Laurea Degree *cum laude* (5-year program) in Electronic Engineering, UniPV

Positions:

2018 – now Full professor of Electrical and Electronic Measurements (ING-INF/07), Department of Electrical, Computer, and Biomedical Engineering, UniPV

2001 - 2018 Associate Professor of Electronics (ING-INF/01), UniPV

Oct-Dec 2016 Visiting Professor (2 months), Microphotonic center, Dept. of Material Science and Engineering, Massachusetts Institute of Technology (MIT), USA

July 2012 Short-term Visiting professor, Optoelectronic Research Center, Univ. of Southampton (UK)

1993 - 2000 Assistant Professor of Electronics, UniPV

1992 - 1993 R&D Engineer, Marelli Autronica (Electronic branch of FIAT group)

1989 - 1991 Research Assistant, Department of Electronics, UniPV

1988 - 1989 Research Assistant, Center for Bioengineering, UW

1987 - 1988 Rotary Foundation Scholar for International Understanding, for studying at UW

Summary of citations (August 2021)

Total citations: Google Scholar 2084; Scopus 1453

Hirsch Index: Google Scholar 25; Scopus 20

Google Scholar i10-index 49

<http://orcid.org/0000-0003-2559-5939>

Scopus author ID: 7004308534

Research Areas:

She has carried on scientific researches in the field of optoelectronics, in collaboration with Italian and foreign Universities and companies, with regard to the study, design and characterization of new components and measuring systems, relative to biomedical and industrial applications. She has given innovative contributions in the following fields: **optical characterization and readout of micro-opto-fluidic devices and sensors; silicon micromachined devices** (inertial and optical MEMS, Silicon micromachined structures for biosensing, Silicon photonic crystals); **measuring systems based on photonic technologies: Laser interferometry, low-coherence interferometry, Near infrared spectral reflectivity and imaging; Fiberoptic sensors and components; Optical cryptography and chaotic phenomena in laser oscillators; Noise limits in optoelectronic systems.**

Teaching duties:

She has been teaching: since 2009 “Microsensors, Integrated Microsystems and MEMS” for grad. students; since 1997 “Microelectronic circuits” for undergrad. students; since 2003 “Biomedical optoelectronics” for grad. students.

She is referring professor and course coordinator of Laurea Magistrale in Electronic Engineering (LMEE) and LM+, LMEE degree in collaboration with companies. She has been tutor and advisor of several theses in Electronic engineering and Bioengineering, of undergraduate and graduate students, as well as of PhD students. (<http://www-9.unipv.it/merlo/Tesi.html>)

Project manager and PI of scientific projects:

“3D Si microstructures for label-free detection of circulating tumor cells by optical tomography,” funded in 2012 by Cariplo Foundation, 2y. project, 3 Units.

“Toward the development of a cell-based optical biosensor: investigation of silicon micromachined photonic crystals as micro-opto devices for monitoring cellular activities,” funded in 2010 by Fondazione Alma Mater Ticinensis, Pavia, Italy, 2y. project, 3 Units.

Associate Investigator and responsible of the UniPV Unit of TWO PRIN-MIUR funded projects: “Silicon micromirrors for optical switching matrices” in 2002, “Photonic Crystal Optofluidic Microsystems for Biosensing” in 2007.

Team member:

International collaborator in the project “Advanced piezoelectric devices” Grant no. 273248, funded by The Research Council of Norway 2018-2021; UNIPV team of DSF-DigitalSmartFluidics “Call Hub Ricerca e Innovazione” 2020-2022, funded by Lombardy region; the Cariplo Foundation project “Optical biosensor for the detection of amyloid fibrils-ligands interactions” funded in 2007; EU FP5 OCCULT FET project, 2001-2004, and EU FP6 PICASSO STREP project, 2006-2009 (both in collaboration with different European research groups).

Project manager and PI of research contracts with companies:

2017-2018 “Design, realization and characterization of a fiberoptic sensor for detection of bending of needle-probes employed in the treatment of solid tumors”, funded by RAW S.r.l. and FESR Bando Innodriver-S3, 2017.

2016-2017 “Design and implementation of a characterization setup for MOEMS”, funded STMMicroelectronics

2012-2014 “Opto-electro-mechanical characterization of MEMS devices”, funded by STMMicroelectronics

2007 “Photodetection and MEMS”, funded by Alcatel-Lucent, Vimercate, Milan

Evaluation and monitoring of the research plans

2015-2017 project “NOVASENS – New optical sensing platform for smart detection of polluting and toxic gases”, of “Novasis Innovazione S.r.l.”, funded by FINAOSTA S.p.A.

2017-2019 project “FALKOR Piattaforma multi uso di rilievo di emissioni odorifere, gas tossici ed inquinanti, con drone”, of “Novasis Innovazione” and “AISICO” funded by FINAOSTA S.p.A.

Recognitions

2016: Fellowship granted by UNIPV “Pavia-Boston Project” - Visiting professor at MIT

2012: Erasmus Staff Mobility Grant for teaching at the Optoelectronic Research Center of the University of Southampton (UK)

1989: Italian National License to practice as Electronics Engineer

1987 - 1988 Rotary Foundation Scholarship for International Understanding

Associate Editor of IEEE/ASME Journal of Micro-Electro-Mechanical-Systems (JMEMS)

Associate Editor of “Micromachines” (MDPI) and Physical section associate editor of “Sensors” (MDPI); Guest Editor of the special Issue of “Micromachines” on “Silicon Micromachined Devices: Outlook and Challenges for Future Applications” 2017 and “Smart Microfluidic Devices with Photonic Control and Sensing” 2021, Guest Editor of the special Issue of “Sensors” on “Refractive index sensors” 2019.

Member of the Technical Committee of The Italian Conference on Photonics Technologies, for several editions; Member of the Italian technical society AEIT, SIE and GMEE; Senior Member of IEEE-Photonics and Instrumentation and Measurement societies.

She has been reviewer of proposals submitted to various funding agencies: Italian Ministry of University, Research and Education (MIUR), Italian provinces Aosta and Trento, Netherlands Organization for Scientific Research NWO, CUIA-CUNICET Italy-Argentina.

She is co-author of Best paper presented at ECSA6th 2019 and Elettroottica '96, Best experimental paper in the field of Electronics – AEI Prize “*O. Bonazzi*” 1996, Best poster – Section Methodology – Technology, XXXI National conf. on Cytometry 2013.