

## **CURRICULUM VITAE – Luca Selmi – Università di Modena e Reggio Emilia**

(last update 1 July 2024)

**Luca Selmi** (FIEEE) received the PhD in Electronic Engineering from the University of Bologna in 1992. In 2000 he became Full Professor of Electronics at the University of Udine, Italy. Since December 1<sup>st</sup>, 2017 he joined the “Dipartimento di Ingegneria Enzo Ferrari” of the Università degli Studi di Modena e Reggio Emilia.

During 1989-1990 he was a visiting scientist at Hewlett Packard Microwave Technology Division, Santa rosa, California where he worked on the electrical and thermal characterization of microwave and millimetre wave devices and the design of integrated circuits featuring integrated transformers and T-coils on Gallium Arsenide. In 1995-1996 he was a member of the technical subcommittee on "Modeling and Simulation" of the IEEE International Electron Device Meeting (IEDM). In 2001-2002 and in 2009-2010 he was a member of the technical subcommittees on “Circuit and Interconnect Reliability” and on "CMOS device Technology" of the same conference, respectively. In 2004 and 2005 he was a member of the Technical Program Committee of the Semiconductor Interface Specialist Conference (SISC) and since 2004 of the Insulating Films on Semiconductors Conference (INFOS). In 2004 he has been Technical Program Committee Member of the IRPS Conference. In 2005 he has been a member of the “Characterization and Reliability” subcommittee of the European Solid State Research Conference (ESSDERC). In 2006 he served as “Characterization and Reliability” Subcommittee Chair. He has been TPC member and publications chair of the IEEE VLSI Technology Symposium, Steering committee member of the INFOS, ULIS and ICMTS conferences.

Luca Selmi has been one of the promoters and and director of the [Italian Inter-University Consortium for Nano-Electronics \(IU.net\) \(2017-2023\)](#) which coordinates participation to European and National research projects of eleven university research groups in the field of More Moore, More than Moore andbeyond Moore nanoelectronic technology. In 2006 he served as member of the MEDEA+ Working group on “Toward and beyond 2015: Technology, Devices, Circuits and Systems”. He held technical and coordination responsibilities of research units in several international research projects of the European Union (see detailed list below) and of the Italian Ministry for University Education and Research MIUR and FIRB projects (see detailed list below). He started and/or supervised research contracts with a few Semiconductor companies worldwide, including Philips, Infineon, STM, NXP.

As University professor, Luca Selmi promoted and activated a PhD Internationalization project with the Institute National Polytechnique Grenoble (INPG) providing the double PhD degree. He also participated to the definition of an International Collaboration agreement between University of Udine and the Indian Institute of Technology, Bombay (IIT-B), India for student exchange and co-tutoring of PhD thesis. He started student exchange agreements in the Socrates/Erasmus framework with more than 10 Polytechnic Institutes and Universities in Europe, and among these, TU Delft, TU Wien, INPG Grenoble, EPFL Lausanne, Univ. of Twente, Univ.of Lubjana, Univ. of Maribor. He tutored and co-tutored a several tens of Master and PhD thesis on various subjects in the field of Micro- and Nano-electronics. In the years 2018-2024 he coordinated the Commission for research at the Enzo Ferrari engineering department at the University of Modena and Reggio Emilia. He presently leads a research group working in several fields of nanoelectronic device modeling, simulation and characterization.

Luca Selmi’s research interests covered various topics in the field of Micro and Nano-electronics. Among these: modeling and simulation of semiconductor devices, with emphasis on high field transport phenomena, characterization and Monte Carlo transport simulation techniques for hot carrier effects in MOSFETs, silicon bipolars and Non Volatile Memory cells, quasi ballistic transport in nanoMOSFETs, CHE and CHISEL injection

in MOSFETs and NVM cells, hot electron effects at low voltages, gate leakage currents and reliability of ultra-thin oxides, statistical characterization of SILC, device characterization, optimization and parasitic extraction, Bulk and SOI MOSFET scaling in the deca-nanometer range, photon emission and electro-luminescence in MOSFETs, design of simple circuit blocks for high frequency wireless telecom applications. Recently his research interests extended to the area of nanoelectronic ion sensors and impedance spectroscopy biosensors. These research activities have been conducted in cooperation with international research centers and semiconductor industries such as Philips Research Laboratories in Eindhoven and Leuven, INPG Grenoble, Infineon Technologies Villach and Munich, ST Microelectronics (Agrate Brianza), Bell Labs and Agere Systems, IBM T.J.Watson Res. Center, NXO Semiconductors and CEA LETI Grenoble.

Luca Selmi co-authored approximately 400 papers on refereed international journals (mostly IEEE-TED, IEEE-EDL) and proceedings of major international conference, including more than 40 papers at the International Electron Devices Meeting (IEDM) three of which invited, 1 one which best student paper award (2022), 1 book on [Nanoscale MOS transistors](#) and 1 book chapter on [Flash memory cells](#). He holds one US and international patent. Luca Selmi is a member of IEEE Electron Device Society, IEEE Fellow (2015) and has been Editor of IEEE Electron Device Letters (2009-2018). He is member of the scientific council of CEA-LETI IRT Nanoelec initiative.