

CURRICULUM VITAE

of Ernesto CIARAMELLA

Expertise

Ernesto Ciaramella has more than twenty-five years research experience in optical communications, focused on various issues (components, propagation impairments, systems and networks). He has been working with various companies and research centers in optical communication, including the Telecom Italia Lab, where he was part of the working group on optical transmission systems, including field trials.

Since Nov. 2002 he is Professor at Scuola Superiore Sant'Anna University (Full Professor since 2022) where he originated and is leading a research group on optical systems and innovative devices. At SSA he served also in the internal evaluation board of SSSA and was a member of the Academic Senate.

He supervised 16 PhD students, most of whom now have leading positions in industry or Academia.

Research

His main research interests include design and experiments on high capacity transmission systems, nonlinear propagation effects of optical signals, advanced optical functionality, optical packet switching, high speed optical access systems, visible light positioning and optical wireless systems. Among his most relevant research achievements, he proposed a new optical fiber regenerator, and a new scheme for coherent detection; with his team, he realized various world-record experiments in optical wireless communications.

Research Projects

He was scientific coordinator of the European STREP Project **COCONUT** ("*COst-effective COhereNt Ultra.dense WDM PON for lambda to the user access*", www.ict-coconut.eu/, Nov.2012- Febb. 2016), on optical coherent systems for ultra-dense WDM optical access networks. In the past, he had taken part into several European Projects (OPEN, PHOTOS, ATLAS, NOBEL 1 and NOBEL II). He was the scientific contact person of SSSA Unit in FP7 ITN INFIERI ("*INtelligent, Fast, Interconnected and Efficient devices for Frontier Exploitation in Research and Industry*") and in FP7 FIRE Project **SUNRISE** ("*Sensing, monitoring and actuating on the UNderwater world through a federated Research InfraStructure Extending the Future Internet*").

Since 2019 he is the Principal Investigator of **TOWS** ("*Transmission of Optical Wireless signals on telecom Satellites*"), a Research Project funded by ESA on the development of optical wireless systems for spacecraft applications. The TOWS project, successfully completed in 2022 with 3 proof-of-concept demos, was then extended to 2024, to demonstrate optimized and miniaturized solutions. Since Sept. 2019 he was also coordinator of Project **FOCS** ("*Free-space Optical Communications for Space applications*"), funded by ASI, on exploratory research of Visible Light Communications for space applications. He was also responsible of SSSA Unit in ESA-

Studies HYDRON DEMONSTRATOR, about realization of optical links among satellites, and LUNAR, about Earth-to-Moon optical links.

He had been the national coordinator of the Italian MIUR-PRIN project **TOSCA** (Transmission of Optical Signals using Competitive Amplification) and the scientific coordinator of Sant'Anna Research Unit in the Italian PRIN Project **ROAD-NGN** (Optical Access Network based on frequency and / or wavelength division multiplexing solutions for Next Generation Network).

In the framework of multi-year collaboration of Scuola Sant'Anna with the industry Ericsson, he was responsible for several internal industrial projects. He was also responsible for various industrial contracts on optical wireless technology and case studies, with several Italian companies.

Editorial and Reviewer Roles

In 2012-2018, he has been serving as Associate Editor of IEEE Photonics Technology Letters, on systems for optical access networks and on optical wireless systems. In 2018-2021 he served as Associate Editor of OSA Journal Optical Communications and Networking. He is also a reviewer for IEEE and OSA leading-edge journals.

He has been as a member of the Technical Program Committee (TPC) of the IEEE/OSA Optical Communication Conference (OFC), of the European Optical Communication Conference (ECOC), of the Asian Pacific Optical Communication conference (APOC) and of Photonics in Switching. He served as Chair of Sub-Committee G (Optical Processing and Analog Subsystems) for OFC 2010, held in San Diego, USA, March 2010. In 2012, he was lead co-chair of the TPC of the IEEE conference Photonics in Switching (PS2012) and lead co-chair of OSA sub-conference SC3 (Optical Transmission Systems, Subsystems, and Technologies) of the Asia Communications and Photonics Conference (ACP 2012). In 2012 he was the lead organizer of the first IEEE International Workshop on Optical Wireless (IWOW 2012).

Research Impact

He published more than 250 international papers and is co-author of 24 international patents.

His current bibliographical parameters, as estimated from Google Scholar database, are: H-index: 41, G-index: 71, citations: 6877.

He was included among the top-100'000 high-impact worldwide authors of all research areas, by Stanford University. He is listed among the top-italian scientists in Engineering. In 2023 was selected in the list Photonics100, including top-100 innovators in Photonics from industry and academia, according to a commercial journal.