IEEE photonics SOCIETY ITALY CHAPTER

IEEE PHOTONICS SOCIETY DISTINGUISHED LECTURER

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Silicon Photonics: a new technology platform to enable low cost and high performance photonics

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Abstract – ***In this talk challenges and opportunities that silicon photonics is facing are reviewed, underlying the achievements and the still open issues. Finally, the speaker will report on silicon nanophotonics which is the approach pursued to widen the scope of success of silicon photonics.***

The following topic areas will be discussed:
- state of the art of silicon photonic devices and requirements of industry and markets.
- Technology and commercial challenges for the implementation of silicon photonics and photonic integrated circuits in the computing and semiconductor industry.
- Advances in silicon device development for photonic circuits and challenges for the on-chip light emission.
- Technology, challenges and methodologies for silicon photonics, hybrid solutions and III-V photonic integrated circuits.
- The direction of silicon photonics and group IV devices. The technology and the requirements for future needs.

Lorenzo Pavesi is Professor of Experimental Physics at the University of Trento (Italy). Born the 21st of November 1961, he received his PhD in Physics in 1990 at the Ecole Polytechnique Federale of Lausanne (Switzerland). In 1990 he became Assistant Professor, an Associate Professor in 1999 and Full Professor in 2002 at the University of Trento. He leads the nanoscience laboratory (30 people), teaches several classes at the Science Faculty of the University of Trento, and is dean of the PhD School in Physics. He founded the research activity in semiconductor optoelectronics at the University of Trento and started several laboratories of photonics, growth and advanced treatment of materials. He is in charge of the professional master NanoMicro, coorganized between University and FBK. He has directed more than 15 PhD studens and more than 20 Master thesis students. His research activity concerned the optical properties of semiconductors. During the last years, he concentrated on Silicon based photonics where he looks for the convergence between photonics and electronics by using silicon nanostructures. He is interested in active photonics devices which can be integrated in silicon by using classical waveguides or novel waveguides such as those based on dynamical photonic crystals. His interests encompass also optical sensors or biosensors and solar cells. In silicon photonics, he is one of the worldwide recognized experts, he organized several international conferences, workshops and schools and is a frequently invited speaker. He manages several research projects, both national and international. He advises EC on photonics and is a frequently invited reviewer, monitor or referee for photonics projects by several grant agencies. He is an author or co-author of more than 280 papers, author of several reviews, editor of more than 10 books, author of 2 books and holds six patents. He is in the editorial board of Phyisics international and he was in the editorial board of Journal of Nanoscience and Nanotechnologies, in the directive council of the LENS (Florence), in the Board of Delegates of E-MRS. He started and is the first president of the IEEE Italian Chapter on Nanotechnology. He holds an H-number of 39 according to the web of science.