

Curriculum Vitae

Prof. Gian-Luca Bona



Professor for Photonics
gian-luca.bona@empa.ch

Degrees/Higher Education

- | | |
|------|------------------------------|
| 1987 | PhD, Physics, ETH Zurich |
| 1983 | Diploma, Physics, ETH Zurich |

Professional Career

- | | |
|----------------|---|
| 2009 - present | CEO of Empa, Swiss Federal Laboratories for Materials Science & Technology |
| 2009 - present | Professor for Photonics at ETH Zurich and EPF Lausanne |
| 2008 - 2009 | IBM Director Tape Storage Solutions in the IBM Server and Technology Group, Tucson, Arizona, USA |
| 2004 - 2008 | IBM Research Functional Manager, Science and Technology, IBM Almaden Research Center, San Jose, California, USA |
| 2003 - 2004 | IBM Research Manager, Photonics, at the IBM Zurich Research Laboratory, Rüschlikon, Switzerland |
| 2002 | Visiting Staff at IBM Watson to IBM Research VP Paul Horn, Yorktown Heights, New York State, USA |
| 1998 - 2002 | IBM Research Manager Photonic Networks, at the Laboratory, Rüschlikon, Switzerland |
| 1996 - 1998 | Research Project Leader at the IBM Zurich Research Laboratory, Rüschlikon, Switzerland |
| 1988 - 1996 | Research Staff Member at the IBM Zurich Research Laboratory, Rüschlikon, Switzerland |
| 1987 - 1988 | Post-doctoral Fellow at the IBM Zurich Research Laboratory, Rüschlikon, Switzerland |
| 1983 - 1987 | Research Assistant in the Group of Prof. Hans Christoph Siegmann, at ETH Zurich |

Major Honors and Awards

- 2 IBM Research Technology Awards
- 6th level IBM Patent Awards

Publications

- More than 100 publications
- 12 patents

Professional Specialization and Achievements

- Magnetism at surfaces, thin films
- High power semiconductor lasers
- High index contrast adaptive Planar Lightwave Circuits (PLC)
- Integrated high speed optical interconnects

Membership in Societies / Committees

- Swiss Physical Society
- European Physical Society
- SATW, Swiss Academy of Engineering
- BAM Bundesanstalt für Materialien, Berlin, Germany: Member of Kuratorium (Board)
- NIMS: National Institute of Material Science, Tsukuba, Japan, Member of International Advisory Board
- President glatec Technology Center Förderverein, Dübendorf
- NCCR Photonics Board member

For more information visit www.empa.ch

Photonic Materials and Testing @ Empa

Keywords and priority areas

- Integrated planar optical waveguide technologies
- Plastic optical fibers
- Scanning near field optical microscopy (SNOM)
- Plasmonic nano-antennas
- Parallel optical interconnects and photonic sensors
- Laser processing and surface modifications / ablation
- Pulsed Laser Deposition (PLD)
- Slow light and photonic band gap structures
- Organic photovoltaic
- Inorganic thin film photovoltaic (e.g. CIGS, CdTe)

Focus

The Photonic activities at Empa range from optical materials deposition and processing to optical analyses and spectroscopies of the various effects and comprise novel device functions for various applications in ICT, light energy conversion and harvesting, sensors, medical applications. The work is done in different labs covering the 3 sites Dübendorf, St.Gallen and Thun as well as utilizing the First Lab of ETH, the Empa antenna at EPF in Lausanne and the Binning-Rohrer Nanotech Facility in Rorschlikon.

Empa is an interdisciplinary research and services institution for material sciences and technology development within the ETH Domain. Empa's research and development activities are oriented to meeting the requirements of industry and the needs of our society, and link together application-oriented research and the practical implementation of new ideas - science and industry, and science and society. The priorities of Empa's research are structured in five Research Focus Areas (RFA) with following topics:

- Nanostructured Materials
- Sustainable Built Environment
- Health and Performance
- Natural Resources and Pollutants
- Materials for Energy Technologies

Bachelor-, Master- as well as PhD thesis can be made at the various laboratories (visit www.empa.ch for more information).

Examples of Research Areas covered at Empa in the area of Photonic Materials and Testing

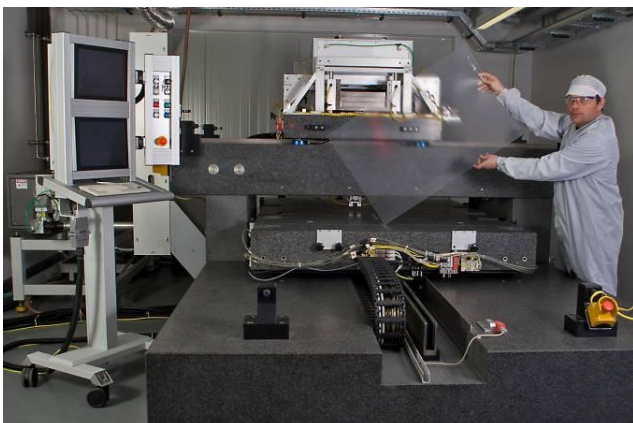


Figure 1: Large scale Excimer Laser processing tool (M. Böhlen et. Al.)

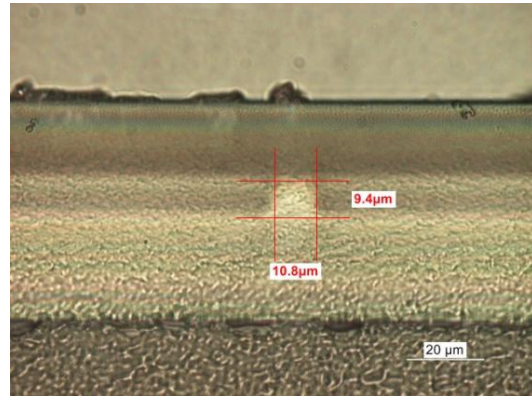


Figure 2: Example of a single mode optical waveguide on a printed circuit board (Eugen Zraggen et al.)

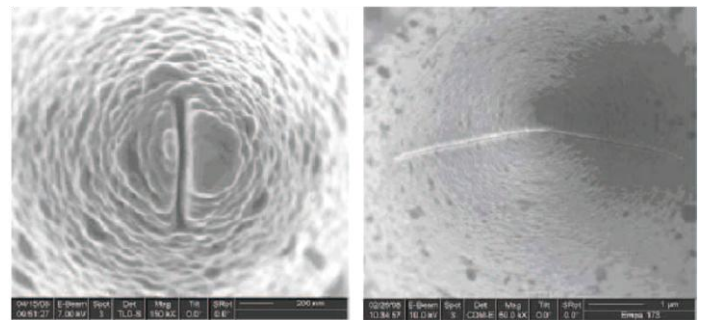


Figure 3: Example of a focused ion beam (FIB) modified tip for an apertureless internally illuminated SNOM (Valeria Lotito et al.)

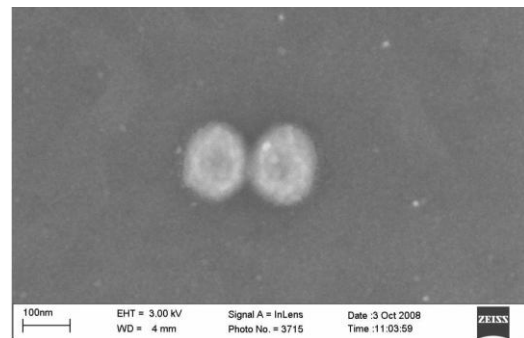


Figure 4: Example of a plasmonic nano-antenna (Olivier Scholder et al.)

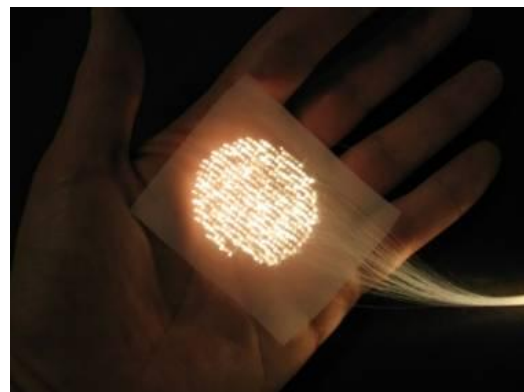


Figure 5: Example of a plastic optical fiber woven in a textile (Lukas Scherer et al.)

For more information visit www.empa.ch