

LUCA POLETTO

- Date and place of birth: 1968, August 22nd, Vicenza, Italy
- Married, three children

Education

- University of Padova, Laurea, "Electronic Engineering", 110/110 cum laude, February 1993
- University of Padova, Ph.D. in Electronic Engineering, September 1997

Appointments

- 1999-2004: National Institute for the Physics of the Matter (INFM), Research scientist
- 2004-2006: National Council of Research of Italy - National Institute for the Physics of the Matter (CNR-INFM), Research scientist
- 2007-2009: CNR-INFM, Senior research scientist
- 2010-present: National Council of Research of Italy - Institute of Photonics and Nanotechnologies (CNR-IFN), Senior research scientist
- 2010-present: Head of the CNR-IFN Division of Padova

Main research interests

- Design and realization of instrumentation for photon handling and spectroscopy of ultrashort femtosecond and attosecond pulses in the extreme-ultraviolet
- Design and realization of instrumentation for photon diagnostics of free-electron-laser radiation
- Design of instrumentation for space spectroscopy
- Development and characterization of photon detectors
- Application of optical techniques for industrial diagnostics and cultural heritage
- X-ray diagnostic techniques for industrial applications

Teaching activities

- University of Padova, Faculty of Engineering, Professor (under contract):
 - "Detectors for space applications", 2003-2005
 - "Experimental physics: electromagnetism", 2004-2005
 - "Physics: electromagnetism", 2009-present
 - "Optical nanotechnologies and lasers ", 2009-present

Main research and coordination activities

1. REALIZATION OF SPACE INSTRUMENTATION

Coordination activities

- Coordinator of two agreements with the Italian Space Agency on the development of photon counting detectors and on the study of configurations for the spectroscopy of the solar corona (2001-2003)
- Italian member of the working group of the European Space Agency for the definition of the characteristics of the instrumentation onboard the Solar Orbiter satellite (2002-2003)
- Italian coordinator of the joint research project CNR-CSIC (Spain) on "Characterization in the visible and ultraviolet of optical filters for solar observations", 2007-2008
- Coordinator of the task "UV and XUV multi-band spectroscopy for the observation of the solar inner corona" in the agreement "Exploration of the Solar System" between the Italian Space Agency and the National Institute for Astrophysics, 2007-2010

Present activities

- Realization of a grazing-incidence stigmatic spectrometer for the observation of the solar corona in the soft X-ray region

Present coordination activities

- Responsible of the spectroscopic channel of the METIS instrument in the Italian proposal coordinated by the Turin Astronomical Observatory for a coronagraph onboard the Solar Orbiter ESA satellite

2. REALIZATION OF SPECTROSCOPIC INSTRUMENTATION

Coordination activities

- Coordinator of the agreement between CNR-INFN and ELETTRA Synchrotron (Italy) on "Realization of a system for the generation and the spectral analysis of high-order harmonics in the 30-70 nm spectral region", 2005-2006
- Coordinator of the agreement between CNR-INFN and ELETTRA Synchrotron (Italy) on "Research and development activities for the realization of optical instrumentation for radiation emitted by a free-electron-laser", 2006-2007
- Coordinator of the agreement between CNR-INFN and ENEA (Italy) on "1) Development of a spectrometer for the study of the SPARC seeded source in the 40-550 nm spectral interval; 2) Study of the characteristics of the high-order harmonics emitted by SPARC", 2006-2009
- Coordinator of the agreement between CNR-INFN and Rutherford Appleton Laboratory (UK) for the realization of the monochromator for the beamline ARTEMIS, 2007-2009
- Coordinator of the agreement between CNR-INFN and DESY Synchrotron (Germany) for the realization of spectroscopic instrumentation for the free-electron-laser FLASH, 2004-present

Present activities

- Collaboration with the Physics Department, Politecnico of Milano, on the generation of high-order harmonics using a parametric source in the infrared
- Collaboration with the Physics Department, Politecnico of Milano, on the realization of a beamline for generation and utilization of attosecond pulses for the investigation of the dynamics of electron wavepackets
- Collaboration with the Physics Department, Politecnico of Milano, on the realization of a beamline for generation and utilization of intense attosecond pulses for non-linear effects in the XUV
- Collaboration with University of Nova Gorica (Slovenia) for the realization of a beamline for generation and utilization of femtosecond pulses for gas-phase electron spectroscopy

Present coordination activities

- FIRB IDEAS "Serapide", Italian Ministry for Education and Research, 2009-2014: coordinator of the CNR-INFN Research Unit
- Project CITIUS, Cross-border Cooperation Italy-Slovenia (CEE), 2010-2013: coordinator of the CNR-INFN Research Unit

3. APPLIED OPTICS

Present coordination activities

- Coordination of the CNR-INFN activities of diagnostics through imaging spectroscopy applied to paintings and glass surfaces (recent acquisitions: paintings of Lorenzo Veneziano, XIV century a.C. and glass windows of Cappella degli Scrovegni, Padova)

4. TECHNOLOGY TRANSFER

Coordination activities

- Member CNR-INFN of the working group for the definition of the District for Nanotechnologies NANOTEC (2002-2003)
- Coordinator of industrial contracts on X-ray diagnostics for the agro-food, tannery and pharmaceutical sectors (2001-2007)

Past activities

- Member of the working group CNR-INFN on the technology transfer, 2006-2008
- Development of X-ray diagnostic techniques applied to radiography and tomography of logs
- Development of X-ray diagnostic techniques applied to non-destructive analysis for the agro-food industry
- Realization of triangulation laser systems for acquisition of 3D spatial profiles
- Development of a system for simultaneous acquisition of spectral features and 3D profiles from artistic and architectural cultural assets (collaboration with the Department of Information Engineering, Padova)

Present coordination activities

- Industrial contracts with CNR-INFN on TDLAS (tunable-diode laser spectroscopy) for gas detection on close containers

Publications

Author and co-author of about 110 papers on international journals and 110 papers on proceedings of international meetings. Holder of one Italian patent on "Imaging reconstruction".