

SEMINARIO PROF. ALBERTO QUARANTA
24-25 MAGGIO 2018, 10.00-13.00 ;14.30-16.30
Dipartimento di fisica e scienze della terra
Via Saragat 11, Ferrara

“Proprietà ottiche dei materiali, dei materiali a film sottile e dei materiali nanostrutturati: scattering e luminescenza”

Between 1992 and 1995 Alberto Quaranta held lectures for the Engineering and Physics Laboratory of Padua University. Since 1995 he is teacher of the Engineering Faculty and then of the Industrial Engineering Department of Trento University.

He was teacher of the courses: *Physics 3* (wave and optics), *Physics 2* (electromagnetism, wave and optics), *Physics for the Viticulture and Enology Inter-academic Course*, *Solid State Physics* e *Surface Physics*. Moreover, he gave lectures for the course of *Materials Characterizations* and *Physics Laboratory*.

Since 2001 he is teacher of the Doctorate School of Materials Engineering and, now, of the Doctorate School on Materials, Mechatronics and System Engineering, teaching at the courses *Optical Properties of Materials* and *Optical Properties of Nanomaterials*.

The surveys on the teaching quality point out a high satisfaction level for courses held by Alberto Quaranta, at levels higher than the Faculty and Department averages.

Alberto Quaranta is also coordinator of the Master Course Materials Production and Engineering at the Department of Industrial Engineering in Trento.

At present, he is teacher of the courses), *Physics 2* (electromagnetism, wave and optics) for the LT in Industrial Engineering and *Solid State Physics* for the LM of Materials and Production Engineering.

SCIENTIFIC ACTIVITY

Alberto Quaranta worked as a scientist from 1990 to 1995 at the Physics Department of University of Padua and since 1995 at the Department of Materials Engineering, then Department of Materials Engineering and Industrial Technologies and now Department of Industrial Engineering of the University of Trento.

Moreover, from 1995 to 2006 he had the Scientific Association at the INFN – Legnaro National Laboratories, from 2006 to 2014 he had the Technological Research Nomination at the INFN – Legnaro National Laboratories and since 2015 he has the Technological Research Nomination at the INFN section of the Trento Institute of Fundamental Physics and Applications (TIFPA).

In general the research interests of Alberto Quaranta are related to the study of the optical properties of functional materials for optoelectronics, chemical sensors and ionizing radiation detectors. In particular, the activity can be summarized by the following arguments:

- Study of the production and optical properties of ceramic materials containing doping ions or nanoparticles.
- Study of organic or hybrid functional materials for the realization of optical sensors for volatile organic compounds (VOCs).
- Study of new scintillating materials for ionizing radiation and neutron detectors.
- Study of the Ion Beam Induced Luminescence (IBIL) technique for materials analysis.
- Study of hybrid or ceramic materials for Luminescent Down Shifters (LDS) or Luminescent Solar Concentrators (LSC) for solar cells.

Moreover, Alberto Quaranta followed interdisciplinary research activities with scientists of different scientific areas. In particular, he worked on optical methods for the analysis of the pasteurization capability of supercritical fluids and for the light scattering analysis of biomasses. Finally, he developed the first studies on the use of IBIL for the analysis of cultural heritage materials. The research activity of Alberto Quaranta is described by **142 papers published on peer reviewed journals** and by more than 30 publications on congress proceedings.