Prof. Luca GREGORATTI

Academic qualification:

1988 – High school diploma at the Liceo Scientifico Statale 'A. Einstein' di Cervignano (UD), Italy.
1994 – University Physics degree obtained at the Università degli Studi di Trieste, Trieste, Italy; final score 110/110; supervisor: Prof. Renzo Rosei. Thesis title: "Effects of the adsorbate structure on the catalytic activity of surfaces: CO+O2 and H2+O2/Rh(100) reactions".
2003 – PhD in Physics obtained at the King's College London, London, UK. Supervisor: Prof. G.R. Morrison. Thesis title: "Scanning Photoemission Microscopy of the silicide phases formed in Ni/Si(111) and Ni+Au/Si(111) systems"

Working experience:

1995-2001: fixed time contracts at Elettra - Sincrotrone Trieste SCpA (Elettra). The activities were focused on: (i) the design, assembling and testing of the experimental chambers of the ESCAmicroscopy beamline which hosts a Scanning Photoemission Microscope (SPEM); (ii) users support (iii) the development of a new system for the acquisition and visualization of the data and the control of the experimental stations based on a new multichannel electron detector.
2001 – today: full time contract at Elettra as head of the ESCAmicroscopy beamline.
2011 – today: Coordinator of the Microscopy/Diffraction Beamlines Group at Elettra.

Teaching & training activities

- Lecturer at the la "ICTP School on Synchrotron Radiation and Applications", Trieste, Italy. Editions: 2004, 2006, 2008 and 2010.
- Lecturer at the "XIII National School of Material Science", Bressanone, Italy 2007.
- I have supervised 1 PhD student of the Università degli Studi di Trieste (2007-2010).

Publications, conferences and patents

- Author or coauthor of more than 120 peer reviewed papers.
- Coinventor of 2 patents (owned by Elettra - Sincrotrone Trieste) related to the development of an innovative anticounterfeiting technology (PCT/EP2008/051320 and PCT/EP2010/070096).
- Public oral presentations at international workshops and conferences >20 (7 as invited) and many others at Universities, Companies, Research Centres, etc.
- Chairman of the International Workshop SPEM2010, held in Trieste, Dec 2010.

Experimental skills & current research tasks

- Materials and interfaces characterization by means of surface sensitive analysis techniques of conventional type (LEED, XPS, AES, SEM, EDX, PEEM) and based on synchrotron radiation (SPEM).
- Support to the experiments proposed and realised by the Elettra users at the ESCAmicroscopy beamline. Development of own research topics. Current research tasks:
    - Characterization of the catalytic and sensing properties of nanomaterials by means of photoemission spectromicroscopy.

  - Development of chemical imaging techniques and procedures for the characterization of devices under working conditions.
  - Development of techniques and procedures of analysis for the spectromicroscopic characterization of the reactivity and chemical composition of materials used for electrochemical reactions under potential.

- Design and realization of vacuum chambers, sample manipulators and movement stages for UHV applications. Design and realization of software users interfaces for spectromicroscopy systems.
- Development of upgrades, methods and procedures to overcome the “pressure gap” limitations in SPEM systems.
- Development of an innovative anticounterfeiting technology based on the use of synchrotron radiation. Development of technical solutions aimed to a large scale production.
- Management and coordination of work teams on specific research projects and ordinary activities.

National and international projects

I have prepared on my own or collaborated to the preparation of many regional, national and European projects, several of them have been funded (FP6-NanO2 (Oxidation of nanomaterials), FIRB-LUCI (Innovative and efficient solid state light sources for daily life and automotive applications), LR11-Acciai (Characterization and optimization of austeninc steels), LR30-NanoBioSOLED (Organic-inorganic interfaces – OLEDs), LR30-ACT (Development of innovative anticounterfeiting technology), LR47-NanoTOX (Toxicity of nanoparticles)).

Several of the above mentioned projects have been lead by Companies and focused on applied research.

I am following the activities of the European Technology Platform ENIAC in collaboration with the Industrial Liaison Office of ST.The full list of publication can be found at the following web address:

http://www.elettra.trieste.it/ lightsources/elettra/elettra-beamlines/escamicroscopy/testpub.html.