



PETRA RUDOLF

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Courses taught : N. "Solid State Physics I " for 3rd year physics and chemistry students, N. "Surfaces and Interfaces", for 3rd and 4th year physics and chemistry students, NS001 "Preparation of Nanomaterials and Devices" (14h) and NS003 "Fundamental and Functional Properties of Nanomaterials" (8h) for TopMaster students in Nanoscience.

Short CV

Publications 1987-2002 ([link](#)), 2003-present ([link](#))

Education

- 1995, *Doctorat en Sciences - groupe des Sciences Physiques*, Thesis title: "*Structural, vibrational and electronic properties of ultrathin C₆₀ films on metallic substrates*", Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium.
- 1987, *Laurea di Dottore in Fisica*, Thesis title: "*Silicio amorfo idrogenato depositato mediante fasci ionici*" (Hydrogenated amorphous silicon deposited by ion beams), Università degli Studi di Roma "La Sapienza", Rome, Italy.

Professional Positions

- 2003-present Editor-in-Chief of the European Physical Journal B (part-time in addition to teaching and research duties at the University of Groningen)
- 2003-present Professor of Experimental Solid State Physics at the Materials Science Centre, University of Groningen.
- 2002-03 Consultant to the European Commission (DGXII) for assistance and monitoring of contracts in Material Science (part-time – 1 day/week – in addition to teaching and research duties at the Facultés Universitaires Notre-Dame de la Paix de Namur and at the Materials Science Centre, University of Groningen)
- 1994-2003 at the Physics Department of the Facultés Universitaires Notre-Dame de la Paix de Namur : 1994-95 Senior research fellow at the at the Laboratoire Interdisciplinaire de Spectroscopie Electroniques, 1995-1997 Senior research assistant of the National Fund for Scientific Research (Belgium), from 1996 onwards *Maître de Conférences*, 1997-98 *Assistant*, 1998-2003 *Premier assistant*, 2002-03 *Chef de travaux*.
- 1991-93 Senior research fellow at the TASC-INFM laboratory, Trieste, Italy.
- 1990-91 Guest scientist at the AT&T Bell Laboratories in the Soft-X-Ray Spectroscopy group working on the Dragon beamline at the National Synchrotron Light Source, Brookhaven, N.Y., U.S.A.
- 1989-1990 Research fellow at the TASC-INFM laboratory, Trieste, Italy.
- 1987-89 Research fellow of the AREA di Ricerca, Trieste, Italy, and, for the last four months, at the AT&T Bell Laboratories in the Soft-X-Ray Spectroscopy group at the National Synchrotron Light Source, Brookhaven, U.S.A.
- 1987, Scientific collaborator of Dr. Carlo Coluzza and Prof. A. Bianconi, Università degli Studi di Roma "La Sapienza", Rome, Italy.

Honors

- Fellow of the Institute of Physics (2001)
- 2001-2003 Member (and in 2003 Chairperson) of the Scientific Advisory Committee of the European Physical Journal
- 2000 - 2001 President of the Belgian Physical Society
- 1999, 2002 Vice-president of the Belgian Physical Society

Expertise

During my university studies I specialised in Solid State Physics. As research fellow I moved into the field of Surface Physics. I have been interested in different aspects of surface analysis, investigating the electronic structure with the help of direct and inverse photoemission spectroscopy, electron energy loss, X-ray absorption and autoionisation spectroscopies; studying the vibrational properties of adsorbed atoms and molecules by high resolution electron energy loss and infrared spectroscopies, and the surface crystalline structure by low energy electron diffraction and scanning tunnelling microscopy. I have extensively used synchrotron radiation techniques. My main research interests are catalytic reactions at metal surfaces, the adsorption of alkali metals on metallic, semiconducting and semimetallic surfaces, the adsorption and self-assembly on surfaces of supramolecular architectures such as catenanes and rotaxanes and the characterisation of ultrathin films of fullerene-based materials.

I have coordinated a Human Capital and Mobility Research Network on *Alkali Adsorption on Graphite, Interaction with Coadsorbed Molecules and Alkali Interaction with C₆₀* and been a partner in other three Training and Mobility of Researchers Networks, one on *Electronic Structure and Physical Properties of Novel Fullerene-based Materials*, one on *Benzylidene Amide Catenanes: Versatile Building Blocks for Complex Multifunctional Materials* and one on *Development of Rotaxane-based Unconventional Materials* as well as in the Shared-cost RTD project *Mechanized Molecules* of the EU Information Society Technologies Programme; currently I co-ordinate the EU Research Training Network *Composites of Augmented Strength: Study of Intercalates of Uniquely Structured Clays* and is a partner in the EU Research Training Network *Exploiting Mechanical Motion within Molecular Architectures*, all financed by the European Commission (DGXII). I was also a partner in a Belgian-French bilateral collaboration project Tournesol on *Characterisation of carbon onions produced by ion implantation* and in a Belgian-Italian bilateral collaboration project *Study of correlation effects in pure and doped fullerenes and in heterofullerenes*.

Publications : 104 research publications, for those from 1987 to 2002 click here, for the most recent ones here.

Lectures/Invited Talks at Nat. and Int. Conferences/Presentations: 43/41/224 worldwide.

International collaborations in the past 48 months

P. A. Brühwiler (EMPA, Switzerland), W. J. Buma (U. Amsterdam, The Netherlands), C. Denadaï (ESRF, France), T.J.S. Dennis (Queen Mary, U.London, U.K.), P. Dumas (L.U.R.E., Orsay, France), A. Goldoni (Sincrotrone Trieste, Italy), D. Gournis (U. Ioannina, Greece), M.R.C. Hunt (U. Durham, U.K.), F. Kajzar (CEA Orsay, France), D. A. Leigh (U. Edinburgh, U.K.), T. Pichler (U. Vienna, Austria), M. Prato (U. Trieste, Italy), R. Raval (Leverhulme Centre and Surface Science Centre, U. Liverpool, U.K.), J. Schiessling (U. Uppsala, Sweden), P. Senet (U. de Bourgogne, Dijon, France), H. Shinohara (Nagoya U., Japan), F. Zerbetto (U. Bologna, Italy).

Students/Postdocs Advised Over Past 10 Years

Graduate Students

Kadosa Hevesi*	Glaverbel, B
Charles-André Fustin*	U.Catholique Louvain-la-Neuve, B
Ingrid Marenne*	Centre Spatial de Liège, B
Francesca Cecchet	U.Catholique Louvain-la-Neuve, B
Sandra M. Mendoza	current
Roberto Macovez	current
Yu Wu	current

Postdoctoral Research Associates

Michael R.C. Hunt [#]	U. of Durham, U.K.
Caroline Whelan [#]	IMEC, B
Annette Wingen [#]	Avantium, NL
Céline De Nadaï [#]	ESRF, F
Michael Pilling [#]	UMIST, Manchester, U.K.
Imad Arfaoui [#]	current
Monika Lubomska [#]	current
Darja Benne [#]	CORUS, NL
Enrico Maccallini [#]	current
Fabrizio Evangelista	current

* Supported by the Belgian National Fund for Scientific Research; [#] Supported by the European Commission.

Students supervised: 7 undergraduates, 3 MS, 5 PhD graduates, 9 postdoctoral fellows. Current: 3 PhD students, 4 postdocs.

Teaching

Professor at the Physics department of the Rijksuniversiteit Groningen – courses taught: "**Solid State Physics I**", 40 hours for 3rd year physics and chemistry students, "**Surfaces and Interfaces**", 28 hours for 3rd and 4th year physics and chemistry students, "**Preparation of Nanomaterials and Devices**" 14h and "**Fundamental and Functional Properties of Nanomaterials**" 8h for TopMaster students in Nanoscience.

Lecturer at the Physics department of the FUNDP, Namur of the courses "**Photoemission**", 15 hours for 4th year students in physics and for graduate students (academic years 1996-1997 to 2002-2003 and as guest professor 2003-2004), "**Synchrotron radiation techniques**", 15 hours for graduate students (academic year 1996-1997) and "**Adsorption de molécules organiques**", 8 hours for PhD students in physics, chemistry and biology of the FUNDP - forth session of the "Cours de formation interdisciplinaire pour doctorands" (academic year 1997-1998).

Supervisor of laboratory projects of 3rd year students in physics at the FUNDP, Namur (Raman spectroscopy, thin film growth and characterisation, α particle interaction with matter) during the academic years 1997-1998 to 2001-2003. *Supervisor for the physics laboratory course* (academic years 1996-1997 to 2002-2003) *and the physics exercise course* (academic years 1997-1998 to 2002-2003) for 1st year students of mathematics, medical and veterinary science.