PUPA GILBERT
(née Gelsomina De Stasio)
Curriculum Vitae

Education

Doctoral Degree in Physics (Laurea), First University of Rome "La Sapienza", 1987. Grade: 110/110. Dissertation: "Time resolved fluorescence in the frequency domain using synchrotron radiation. Design and construction of the beamline PLASTIQUE, and study of the Parinaric Acid excited states".

Employment History

- 2002-2006, Research Director, University of Wisconsin Synchrotron Radiation Center
- 1999-present: Professor of Physics, University of Wisconsin-Madison.
- 1999-2001, Distinguished Visiting Scientist at JPL/Caltech.
- 1988-2000, Staff Scientist at the Institute for the Structure of Matter, National Research Council, Rome, Italy.
- 1994-1998, Staff Scientist at the Institut de Physique Appliqée, Ecole Polytechnique Fédérale de Lausanne.

Awards

- Nominated for the 2007 l'Oréal-UNESCO « Women in Science » Award. Only 1 scientist is nominated in each country, only 1 winner per continent will be selected.
- Vilas Associate Award, University of Wisconsin Graduate School, 2006-2007. Given by the University of Wisconsin Graduate School, in competition with 1 or 2, tenured or untenured professors from each department at UW. (4 mo. summer salaries for 2006 and 2007, + $25,000)
- College of Letters and Science, one semester of research salary support, Spring 2006.
- Romnes Award, University of Wisconsin Graduate School and Wisconsin Alumni Research Foundation, 2002. Given within 4 years of tenure, for outstanding research achievements ($50,000).
- Cavaliere della Repubblica (Knight of the Italian Republic), appointed by President Carlo Azeglio Ciampi, 2000.
- Gert Rempfer "New Millennium Guiding Light Award" 2000.
- "TOYP" Award 1997 (The Outstanding Young Persons of the world) of the Junior Chamber International, Award for Scientific and Technological Development, selected among the winning candidates of 116 countries worldwide.

Main Scientific Achievements

- First evidence (2006) of x-ray linear dichroism in a biomineral (2007, Nature, submitted)
- First identification (2005) of protein folding and misfolding with x-ray absorption near-edge structure (XANES) spectroscopy, with nanometer spatial resolution (2007, Biophysical Journal, re-submitted after revisions).
- Invention of Gadolinium Synchrotron Stereotactic Radiotherapy (GdSSR) (Clinical Cancer Research 2006), patent pending.
- First identification as polysaccharides (2003) of microbially produced polymers, when these template the formation of curved, 2-nm-wide, pseudo-single crystals with 1:1000:1 aspect ratio, at the core of 100 nm FeOOH filaments. (Science, 2004).
- Invention of a new sputtering approach to expose the cytoskeleton of cells for surface sensitive analysis (AFM, SEM, spectromicroscopy, etc.) (Microscopy Research and Technique 2004).
- World record resolution (<10 nm) for synchrotron photoelectron emission spectromicroscopy (X-PEEM) with the ELMITEC instrument and x-ray illumination (Ultramicroscopy, 2004).
- First analysis of sub-micron inclusions in a 4.4 billion year old zircon, implying the existence of continents on the early Earth, only 150 million years after the solar system formed. This analysis was enabled by the invention of a new differential coating approach, which makes X-PEEM the only non-destructive analytical tool for minerals in particular, and insulators in general (Ultramicroscopy 2003).
- First spectromicroscopic detection of the preferential distribution of gadolinium in cancer cell nuclei for GdNCT in vitro (Cancer Research 2001). US patent 6,770,020 B2, 2004-2022.
- First feasibility tests of photoelectron spectromicroscopy of wet samples in the water window (Rev. Sci. Instrum 2000).
- Design, construction (1995), and achievement of world record resolution (20 nm) for synchrotron imaging photoelectron spectromicroscopy with MEPHISTO (Rev. Sci. Instrum. 1998).
- Invention of a new ashing method to selectively remove carbon from cells and tissues without displacing the microscopic localization of other elements. This method enables the study of trace elements at the subcellular level (Analytical Biochemistry 1997).
- Discovery (1993) of the preferential role played by Purkinje neurons in the uptake of aluminum (NeuroReport 1993, NeuroReport 1994).
- Pioneering (1989) the use of synchrotron spectromicroscopy to investigate biological systems (Nucl. Instr. Meth. (1990)).
- Design and construction (1987) of the beamline PLASTIQUE (Rev. Sci. Instrum. 1991).

Patents at Wisconsin Alumni Research Foundation

1. De Stasio et al., Method of using gadolinium neutron capture to treat cancers. United States Patent No. US 6,770,020 B2, August 3, 2004. Expires June 4, 2022.
2. De Stasio et al. Method to Treat Neoplasms Via Gadolinium Stereotactic Synchrotron Radiation. Provisional Patent Application 60/755,120, filed 12/30/05. Non-provisional application filed December 29, 2006.

Languages

Mother tongue: Italian. Fluent in English and French. Notions of Japanese, Spanish, Russian and Greek.

Hobbies

Surrealist painting, reading, cooking, rock and icicle climbing, SCUBA diving.

Graduate Students and Post Docs

-Sandra Pochon, EPFL Diploma in Physics, 1995-96.

-Gian Francesco Lorusso, Post Doc at EPFL, 1995-97, Currently at KLA, San Jose, CA.

-Jose Redondo, EPFL Diploma in Physics, 1995-97. Currently at Orange, Switzerland.

-Olivier Fauchoux, graduate student in Physics, EPFL, 1998, Currently in France.

-Luca Perfetti, Laurea in Physics, University of Rome, La Sapienza, 1998-99, Currently Post- Doc in Berlin, Germany.

-Benjamin Gilbert, Ph.D in Physics, EPFL July 2000. Currently Post-Doc at UC-Berkeley

-Benjamin Gilbert, Post Doc at UW-Madison, August 2000-February 2002. Currently Post Doc at UC-Berkeley.

-Bradley H. Frazer, Ph.D. in Physics, UW and EPFL, January 9, 2004. Currently Staff Scientist at UW-SRC.

-Deepika Rajesh, Post Doc in Human Oncology at UW, April 2002-present.

-Brandon Sonderegger, graduate student in Biophysics at UW, April-September 2002.

-Matthew Daniels, graduate student in Physics, UW, June 2003-June 2004.

-Robert Erhardt, graduate student in Biophysics, UW, June-December 2003.

-Christopher Johnson (co-advised with Judd Aiken), Molecular Biology, UW, April 2003-present.

-Mike Abrecht, Post Doc in Physics at UW, then at SRC, then Staff Scientist at SRC, February 2005-present.

-Rebecca A. Metzler (co-advised with Susan N. Coppermith), graduate student in Physics, UW, May 2005-present.

-Ronke M. Olabisi, Post Doc inPhysics at UW, June 2005-October 2006.

-Andrew Konicek (co-advised with Robert W. Carpick), graduate student in Physics, UW, August 2005-present.

-David Grierson (co-advised with Robert W. Carpick), graduate student in Physics, UW, August 2005-present.

-Dong Zhou (co-advised with Susan N. Coppermith), graduate student in Physics, UW, Jan. 2007-present.

Undergraduate Students

-Astrid Valiquer, EPFL, Spring 1998.

-Sebastian Schaub, Ecole Normal Superieure de Lyon, France, Summers 1999 and 2000.

-Samuel Gross, UW-Madison, Spring 2000.

-Jeffrey Spector, UW-Madison, Summer 2001.

-Casey S. Barka, UW-Eau Claire, Summer 2001.

-Andrew D. Gadtke, UW-Physics, Summer 2002.

-Katherine L. Richter, U. South Carolina, NSF-REU, Summer 2002.

-Gordon R. Stephenson, UW-Chemistry, Spring 2003.

-Maria V. Bravo, UW-French and Molecular Biology, NSF-REU, Summer 2004.

-Valerie Hoefert, UW-Animal Science, Spring 2004, Fall 2004.

-Angela R. Blissett, UW-Physics major. Fall 2004, Spring 2005, Fall 2005.

-Molly J. Andreason, U. of Saint Thomas, MN, NSF-REU, Summer 2005.

-Andrew J. Ballard, UW-Physics major. Fall 2005.

-Derek L. Woolley, UW-Physics major. Fall 2006, Spring 2007.

Publications

1 book
98 refereed publications
19 non-refereed publications
62 invited talks at domestic and international conferences
26 invited talks at national and international conferences
52 seminars and colloquia.