

## Curriculum Vitae

Rita Magri, became associate professor of Physics of Matter at the University of Modena and Reggio Emilia, Italy in 2010. She obtained in 2016 the eligibility for a full professor position. Before she had been Assistant Professor at the same university for 18 years.

She got her Master Degree in Physics, mark summa cum laude, in 1985, thesis: “Dielectric Function for the Anderson Hamiltonian” and her PhD in 1990, thesis: “Electronic and Structural Properties of Semiconductor Superlattices”, always in Modena.

From Nov. 1, 1989 to April 30th 1991, she had been Postdoctoral Fellow and Research Assistant at the Solar Energy Research Institute (SERI) (now National Renewable Energy Laboratory), in Golden, Colorado, USA, in the group of Dr. Alex Zunger. In the USA she studied the thermodynamic stability and electronic properties of semiconductor random alloys and super-structures with long and short range order. She applied approaches, like the cluster expansion method and the special quasi random structures to predict different alloy properties (total energies, Madelung energies, electronic band gaps, densities of electronic states).

From 1991 to 1992 she worked as a postdoctoral fellow at the Simon Fraser University, Burnaby, Canada, in the group of Prof. J. Dahn on the calculation of the electronic properties of graphite-boron binary compounds for applications to anodes in lithium ion rechargeable batteries.

Her research interests have focused and focuses mainly on:

- (A) the theoretical investigation of the structural, electronic, and optical properties of semiconductor low dimensional systems and alloys, using both ab-initio methods and semi-empirical approaches.
- (B) the theory and simulation of molecular beam epitaxy growth of thin layers and nanostructures using multi-scale computational techniques.
- (C) the study of short range order effects on the band alignments and band gaps in ternary and quaternary III-V compounds.
- (D) the study of the electronic and optical properties of zero and one-dimensional nanostructures, in particular the structural stability and light absorption/emission processes in semiconductor nanocrystals and nanowires.
- (E) the study of surface phase diagrams and the stability of point and extended defects on surfaces.
- (F) the simulation of catalytic reactions at oxide surfaces.

She has been Principal Investigator in National and International projects. Among others:

1. Principal Investigator of the Participant UNIMORE, Italy, in the EU Project RIA: Autonomous Polymer based Self-Healing Components for high performant Lithium Ion Batteries (BAT4EVER), 2020-2023
2. National Coordinator of the Italian National Project PRIN 2007, “Bridging the gap between experiment and theory: towards the control of growth and properties of semiconductor nanostructures” involving the National Research Council (CNT) and the University of Tor Vergata, Rome, 2008-2010.
3. National Coordinator of the Italian INFN PAIS-CELEX Project. “Computing Electronic Excitation and Optical Spectra of Surfaces, Clusters and Interfaces from First-Principles”, involving the Universities of Tor Vergata, Rome and Milan (Statale), 2003-2004.
4. Team Leader of the Italian National Project PRIN 2005, “Spatially controlled nucleation of quantum dots for single photon emitters”, involving the Universities of Rome Tor Vergata and Florence. 2006-2008.

5. Team Leader of the EU Project INTAS “Polarization Resolved Spectroscopy of nanostructures”, 2000-2002.
6. Team leader in the bilateral Galileo Project, Italy-France, “Project and Study of Semiconductor Materials for non Linear Optics and Infrared Spectroscopy Applications”, 2002-2003.
7. Recipient of the International EOARD (European Office of Aerospace Research and Development), Grant “Empirical Pseudopotential Modeling of Antimonide based III-V Nanostructures”, 2002-2004.

Abroad Scholarships: Visiting Professor at the Ecole Normale Supérieure in Paris in 2000 (3 months), as Post Rouge Researcher at the CNRS in 2002 (six months), as a Senior Scientist at NREL, USA, in 1999 (three months) and 2005 (three months), as a Visiting Scientist at the University of Sao Paulo, Brazil, in 1995 (one month) and many more short-visits.

She is single author and co-author of more than 100 articles in international journals, and she has been an invited speaker in international workshops and conferences and as a lecturer at foreign Universities.

Reviewer of the international EU IP Project “Zero Order Dimension based Industrial components Applied to teleCommunications (Zodiac)”, NMP-2004-IST-NMP-3, year 2005.

Project evaluator for the Swedish research council (VR) in the "Electronics, electrical engineering, semiconductor physics and photonics"-review panel NT-13, year 2018.

Reviewer of scientific papers and books for many international journals and editors and evaluator of HPC projects.

She has taught starting 1996 many University courses:

Electromagnetism and Optics for undergraduate students of Geology

Electromagnetism and Optics for undergraduate students of Engineering

Introductory Quantum Mechanics for Undergraduate Physics Students

General Physics: Electromagnetism for Undergraduate Physics Students

Vibrations and Waves for Undergraduate Physics Students

Electrodynamics and Optical Properties of Matter for Graduate Physics Students

General Physics for Undergraduate Students of Information Technology

Classical Mechanics and Laboratory for Undergraduate Electric Engineering Students

Physics of Semiconductors for graduated Physics students

Fundamentals of Structure of Matter for Undergraduate Physics Students

Quantum Physics of Matter for graduate Physics Students.