

Olivia Pulci

Education

- 1986–1992 Physics at the University of Rome “La Sapienza” Diploma Thesis: “Light-induced defects in amorphous SiC:H” Final mark: Summa cum laude
- 1993–1997 PhD in Physics at the University of Rome ‘Tor Vergata’. Thesis: “Ab initio calculation of the optical properties of Surfaces: Application to the GaAs(110) surface.”

Academic Appointments

- 2017-2023 National (italian) qualification for full professor in Solid State Theory (02/B2, call 1532/2016)
- 2010-today: Associate Professor at the University of Rome Tor Vergata
- 2005-2010: Researcher at the University of Rome Tor Vergata
- 2003-2005: INFM Researcher, Univ. of Modena and Reggio Emilia and Univ. of Rome Tor Vergata
- 2001-2003: INFM postdoc, University of Rome Tor Vergata
- 2001: Postdoc, University of Rome Tor Vergata
- 2000: Post-Doctoral Research Associate, Max Planck Institute “Fritz Haber”, Berlin
- 1999-2000: DFG contract at the IFTO, Friedrich-Schiller-Universität, Jena, Germany
- 1998-1999: Post-Doctoral Research Associate, Ecole Polytechnique, Paris
- 1997-1998: Post-Doctoral Research Associate, IFTO, Friedrich Schiller Universität, Jena, Germany

Other Appointments

- Since November 2019 Coordinator of the CAST (Centro di Ateneo per il Calcolo nella Scienza e nella Tecnica) <https://www.fisica.uniroma2.it/sezioni/ricerca/centri-di-ricerca/centro-di-ateneo-per-il-calcolo-nella-scienza-e-nella-tecnica/>
- Since March 2010: Member of ‘Collegio dei Docenti di Dottorato’ (PhD school) in Physics of Tor Vergata University for the PhD in Physics
- 2011-2012: Adjoint Member of the PhD School ‘Material for Health, Environment and Energy’
- Since December 2014: Reference Scientist for the ERASMUS programme at Tor Vergata, for the students of ‘Material Science and Technology’ Laurea course.
- 2014-2015: member of the Council of the CECAM-La Sapienza node
- Since 2016–: member of the Council of the CECAM-IT-SIMUL node, and reference scientist for Tor Vergata (<https://cecamsimul.eu/>)
- Since 11-2018: Member of the “Giunta del Dipartimento”
- Since November 2020: Member of the “Commissione Didattica Ristretta” for the Physics course

Scientific Responsibilities

European Theoretical Spectroscopy Facility Users projects: O.P. has been given the responsibility by the European Theoretical Spectroscopy Facility (ETSF) to carry on the research collaborative study of the following users projects, approved by the experts reviewers of the external evaluation panel, and financed by the ETSF:

- ETSF user Project n.71. Proponent: Dr. Leonardo Guidoni (Roma, La Sapienza)

1.11.2009–31.10.2010 Title: “The optical spectra of rhodopsin by many body theory”

- ETSF user project n.113. Proponent: Prof. Yves Borenztein (Jussieu, Paris)

4.june.2009-1 April 2010 Title: “The puzzle of the SiC(001): optical properties

versus reconstructions understanding”

- ETSF user project n.173. Proponent: Dr. Maria Antonietta Loi (Groningen, The

Netherlands) Feb.2010—2011 ” Title: “Electronic properties of PbS nanocrystals”

- ETSF user project n.211. Proponent: Dr. Mauro Missori (ISC, CNR, Rome) 1.4.2010-31.12.2010. Title: Understanding the ancient paper yellowing and degradation.

- ESTF user project n.232. Proponent: Dr. Leonardo Guidoni (Roma, La Sapienza)

May 2010-June 2011. Title: The optical spectra of rhodopsin by many body theory.

(follow up of project n.71)

- ETSF user project n.373. Proponent: Dr. Michele Cascella, Departement fr Chemie und

Biochemie Universitt Bern 2/2011-June 2011. Title: Solvent effects on the optical

properties of acetone and formamide.

- ETSF user project n. 306. Proponent: Prof. Peter Weightman University of

Liverpool 9/6/2010-12/2010. Title: “Tackling real surfaces:the effect of steps on the

optical properties of C(001):H”

Other scientific responsibilities:

- 2015-2019: Responsible scientist for WP1 of the EU RISE project CoExAN

- since 2019: responsible of the ab-initio calculations in the EU RISE project DiSETCoM

- 2018-2020: Task leader in the project ADAMO of the DCT Lazio (Distretto Tecnologico dei

Beni Culturali)

- 2018-2020: Task leader for the ab-initio calculations in GRAFION (financed by Regione

Lazio)

- since 2019: ENEA Project on Sodium Batteries “1.2 Sistemi di accumulo, compresi

elettrochimico e power to gas, e relative interfacce con le reti", financed by MiSE PTR 2019-2021, responsible of the workpackage "Calcoli teorici su materiali elettrodici e loro interfaccia con l'elettrolita"

Organized Conferences

- 1)co-chair "Ab initio Theoretical Approaches to the Electronic Structure and Optical Spectra of Materials" Lyon, France, CECAM (2002)
- 2)co-chair "Ab initio Electron-Excitations Theory: Towards systems of Biological Interest" BIOEXC, San Sebastian, Spain, (2003)
- 3)co-chair "Theory and Modeling of Electronic Excitations in Nanoscience", Acquafredda di Maratea, Italy, (2004)
- 4)co-chair "40 Years of the GW Approximation for the Electronic Self Energy: Achievements and Challenges" (GW2005), Bad Honnef, Germany, 2005.
- 5) organizer of the special session 'Optical properties' (memorial for Prof. Rodolfo Del Sole) at ICSFS16 (Genoa 1-6 July 2012)
- 6)Member of the Organizing Committee of the CECAM/ETSF Young Research Meeting (12-14 May 2014 Rome)
- 7)Organizer of the miniworkshop "Collective Excitations in Advanced Nanostructures (CoExAN)" (26 July 2016 Erice) within EPIOPTICS-14 school
- 8)Co-organizer of the annual European Theoretical Spectroscopy Facility workshop (Frascati 4-7 September 2017)

Member of the Scientific/Advisory board in 14 conferences

Funding as PI-principal investigator

- February 2010-October 2014: Scientific Coordinator of the IRSES European Project "New Century of Superconductivity: Ideas, Materials, Technologies" (SIMTECH), FP7, project n. 246937.
Amount of financing: 712.800 Euro
- 1st October 2015-30 September 2019: Scientific Coordinator of the RISE CoExAN (MSC actions in HORIZON2020, GA644076). Within such project, the innovation initiative "Carbon-based materials for microwave -THz radiation absorbers" has been selected by EU (see <https://www.innoradar.eu/>). Moreover, in 2018 the project entered the Graphene Flagship as partnering project.
Amount of financing: 1.003.500 Euro

Publications

154 Peer Reviewed Publications. Among these:

- 1 Advanced Materials
- 2 Nano Letters
- 5 Phy. Rev. Lett.
- 1 Nature Comm.
- 3 Scientific Report
- 5 Appl. Phys. Lett.
- 32 Phys. Review B
- 3 Chapters in books
- 1 item in Encyclopedia

Talks

49 Invited in conferences/workshops/schools
19 Invited seminars at Universities and Research Centers
29 oral contribution in conferences

Total number of citations:

Citations: 2346 (Scopus) 2981 (Scholar), 2278 (WoS)

H-index:

H-index: 25 (Scopus), 30 (Scholar), 26 (WoS)

Student Tutoring

Supervision/tutoring of students or early stage researchers: 40

Scientific Management Responsibilities and scientific associations

1. 2004-2005 Scientific Coordinator of the section 'Surfaces and Interfaces' (IT7) for the Network of Excellence European Project 'NANOQUANTA: Nanoscale Quantum Simulations' (FP6). (Primary coordinator of IT7: Prof. Giovanni Onida)
2. 2005-2007: Member of the Nanoquanta scientific committee for the organization of the European Theoretical Spectroscopy Facility (ETSF)
3. 2007: Member of the scientific committee of NaST (Laboratorio d'Ateneo) Rome Tor Vergata
4. Since 2007: Research Team Leader in the European Theoretical Spectroscopy Facility (ETSF: <http://www.etsf.eu>) core node of Rome Tor Vergata
5. 2008-2016: Optical Beamline reference scientist for the European Theoretical Spectroscopy Facility
6. 2011-2012: Partner Unit coordinator for the node of Rome Tor Vergata of the EU project "ROBOCON" (Routes to Bose-Einstein Condensation at Room Temperature) (IRSES project within FP7, Grant Agreement 230832)
7. 2011-2013: Partner Unit coordinator for the Rome node of the ITN (MSC actions) "CLERMONT4" (FP7, GA235114)
8. February 2010-October 2014: Principal Investigator (coordinator) of the IRSES European Project "New Century of Superconductivity: Ideas, Materials, Technologies" (SIMTECH), FP7, project n. 246937. Amount of financing: 712.800 Euro
9. 1st October 2015-30 September 2019: Principal Investigator (Coordinator) of the RISE CoExAN (MSC actions in HORIZON2020, GA644076). Within such project, the innovation initiative "Carbon-based materials for microwave -THz radiation absorbers" has been selected by EU (see <https://www.innoradar.eu/>). Moreover, in 2018 the project entered the Graphene Flagship as partnering project. Amount of financing: 1.003.500 Euro
10. October 2018-January 2020: Task leader in the project ADAMO of the DCT Lazio (Distretto Tecnologico dei Beni Culturali)
11. Since 1st March 2019: Partner Unit coordinator for the Rome node of the EU project DiSetCOM (MSCA RISE HORIZON2020 GA823728), duration: 48 months
13. November 2018-October 2020: Task leader for the Physics node of the project GRAFION (financed by Regione Lazio) (project number 85-2017-15125)
14. since 2019: ENEA Project on Sodium Batteries "1.2 Sistemi di accumulo, compresi elettrochimico e power to gas, e relative interfacce con le reti",

financed by MiSE PTR 2019-2021, Task leader for the workpackage “Calcoli teorici su materiali elettrodici e loro interfaccia con l’elettrolita” (75 kEuro).

Memberships and associations:

- Member of the European Theoretical Spectroscopy Facility (ETSF)
- Member of the Mediterranean Institute for Fundamental Physics (MIFP)
- Member of the American Chemical Society (ACS, Membership number 30604339) (2014-2019)
- Associated to the CNR-ISM laboratory
- Associated to INFN (National Institute Nuclear Physics)

Reviewer Activity

- 1/8/2016-30/9/2016: Evaluator for the Centre Europeen de Calcul Atomique et Moleculaire (CECAM, www.cecam.org) of proposals for CECAM financed Scientific Schools
- 2014-2017: Associate Editor of the journal “Frontiers in Materials”, belonging to the Nature publishing group
- since 2014: I belong to the Referees Panel for the European projects PRACE
- 2014: referee for the Austrian Science Fund (FWF) START projects
- 2013: Referee for the German Research Foundation (DFG)
- Referee of international journals (Phys. Rev. Lett., Appl. Phys. Lett., Surf. Science, Physical Review B, Thin Solid Films, Physica Status Solidi, Superlattices and Microstructures, The Journal of Physical Chemistry).
- 2007-2009: Member of the national evaluation panel for CINECA-INFN super-computer projects
- 2010: evaluator of proposals to the CEA-Eurotalents projects
- since 2011: Reviewer for CINECA ISCRA projects

Research Activities

• *Surfaces:*

Ground state properties: equilibrium geometry, determination of relaxation and reconstruction, study of the relative stability of surfaces under different growth conditions. Electronic band structure and optical properties (Reflectance Anisotropy and Surface Differential Spectroscopy) of surfaces. Effect of steps.

• *Nanocrystals, nanodots:*

Absorption and emission spectra of nanocrystals, free standing and embedded.

• *Towards systems of biological interest:*

study of water, and formamide in water; optical spectra within QM/MM+MBPT of indole in water solution; study of the photoisomerization of rhodopsin; study of ice.

• *Graphene and other 2-D systems*

study of graphene, silicene and germanene pristine and with adsorbates for opening a gap. Effects of the substrates. Effects of twist angles. Study of 2D-Nitrides.

• *Cultural Heritage:*

Theoretical investigations of degradation of cellulose. Study of Leonardo Da Vinci self-portrait.

• *Software development:*

co-author of the post-processing code pw2gw.x, in the quantum espresso suite, for the calculations of the optical properties of matter.

- *Topological aspects of Matter: Dirac, Weyl fermions, topological insulators*
Study of 3-dimensional Dirac and Weyl systems. Transitions from topological to trivial insulators, driven by an external electric field.

Dissemination Activities

Outreach and Third mission

- ESTF training project n.175. Proponent: Dr. Christoph Cobet (ISAS, Berlin, Germany) Nov 2009-Feb 2010 Training project for Markus Roepischer, Title: Optical properties of III-nitride superlattices
- ETSF training project n.302. Proponent: Dr. Mariella Ippolito (Caspur, Rome) 29/3/2010-Feb2011. Title: "Optical properties of silicon nanocrystals"
- Publication about "Carbon nanocircuits" on the broad audience journal Platinum (28 November 2016, page 86)
- Press release on the national newspaper La Repubblica about the Leonardo Da Vinci self-portrait: http://www.repubblica.it/scienze/2014/06/16/news/lautoritratto_di_leonardo_sta_svanendo_cos_possiamo_salvarlo_dal_tempo-88650028/ (16 June 2014)
- 11th April 2019 seminar for the "Percorso di Eccellenza Laurea Magistrale in Fisica": "The Marie-Sklodowska-Curie projects in HORIZON2020", University of Tor Vergata
- "Costruirsi la carriera attraverso la mobilita': dall'ERASMUS ai progetti RISE" Tor Vergata, 22 Ottobre 2020 (Seminario divulgativo per i Percorsi d'eccellenza)

Website

https://www-en.fisica.uniroma2.it/phone-directory/pulci_en/

Rome, 2nd January 2021