

## Curriculum Vitae Salvatore Patanè

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### Education

1982 High school liceo scientifico “G. Seguenza”, Messina, Italy, full marks (60/60)

1989 Degree in Physics full marks (110/110) cum laude, University of Messina, Italy

1994 Ph.D. in Physics IV Cycle, University of Messina

### Language skills

Italian, English (fluent)

### Employment

2019-present Full Professor of experimental condensed matter physics, University of Messina, Italy,  
2010-2019, Associate Professor of experimental condensed matter physics, University of Messina,  
Italy,

1996-2010, Researcher, University of Messina, Italy,

1993-1996, Professor of Physics in high school. Italy,

### Teaching activity

Prof. Patanè has been continuously teaching since 1999 for the courses of the scientific disciplinary sector FIS/03 in the degree courses in Electronic Engineering, Materials Engineering and Industrial Engineering. He has occasionally carried out teaching activities in the scientific disciplinary sectors ING-INF/05, ING-INF/06, MAT/08. He has carried out teaching activities within the Sicilian Interuniversity School of Specialization for Secondary Teaching (SISSIS), and in various Masters of the University of Messina and the University of Catania. He held the course of Electronics for the Bachelor's Degree in Physics (SSD ING-INF/01), and the course of Physics of Nanotechnologies for the Master degree in Physics (SSD FIS/03) at the University of Messina and the course of Microscopy (SSD FIS/03) for the PHD in Physics.

### Scientific supervision

Salvatore Patanè was the supervisor of 2 Postdocs, 8 PhD thesis and over 50 Master and Bachelor. The training activity also includes a continuous commitment both as a teacher and as tutor and thesis supervisor in the PhD in Advanced Technologies for Optoelectronics and Photonics and Electromagnetic Modeling (from 2002 up to 2012) and in the PhD in Physics (from 2013 up to today).

### Research interests

- Scanning probe microscopy
- Advanced materials for optoelectronics
- Optical properties of semiconductor nanostructures and photonic devices.
- Energy conversion
- Characterization of power devices.

### **Scientific activities**

Characterization of materials and nanostructures by near field optical microscopy and spectroscopy and AFM techniques, development of hybrid organic inorganic photonics devices including the realization of energy conversion systems, the study of optical confinement phenomena in micro cavities and the light matter interaction, the characterization of power devices and the estimation of their life time by studying the thermomechanical stress and the induced plastic strain

He is author of more than 145 publications (h-index=22) on International Journals with more than 1700 citations, and some chapters in scientific books.

### **Management activities**

From 1996 to 2000 he was head of the Laboratory of Optical Spectroscopy, Department of Condensed Matter Physics and Advanced Technologies, University of Messina.

In 1997, he was trainer in a course for teachers of Physics and Mathematics organized by the AIFA on the theme "The role of making in science teaching: a guide to an integrated education."

Participated in the PRIN funded in 1997, "Optical and electro-based organic materials," national coordinator prof. Roberto Cingolani.

Participated in the PRIN funded in 1999, "Microstructure-inorganic electroluminescent high yield based on modified porous silica and thiophene," national coordinator prof. ██████████.

Secretary of the evaluation board for a research position at the University of Salento

In 2001 he was appointed referee for the "Ecole Doctoral Physique et Nanophysique" Paul Sabatier University in Toulouse.

Secretary of the evaluation board for a research position at the University of Palermo, Faculty of Engineering.

He was responsible for a four-year research fellowship at the University of Messina entitled "Design and implementation of advanced techniques nanospectroscopy probes."

In 2002 he was responsible for the interdisciplinary research project: "Nanoscience and Medicine: Study of cell morphology and recognition of proteins by scanning probe microscopy and nano spectroscopy" (years 2002/2003)

He was a member of the local scientific evaluation board (2002/2004, University of Messina).

In 2003 he was responsible for the interdisciplinary research project: "Nanomaterials and nanodevices based on porphyrin and genetically modified bacteriophage".

In 2003 he was responsible for the local research project "Materials and technologies for photonics and optoelectronics".

Secretary of the evaluation board for a permanent position as research at the University of Palermo, Faculty of Engineering.

Secretary of the evaluation board for a permanent position as research at the University of Padua, Faculty of Sciences.

He was a member of the board of the PhD program in "Advanced technologies for optoelectronics and photonics, and electromagnetic modeling," University of Messina.

He was a member of the local scientific evaluation board (2008/2011, University of Messina).

Since 2000 works as referee for several international journals, including the IOP journals, Journal of Optics A: Pure and Applied Optics Journal of Micromechanics and Microengineering, Nanotechnology and Semiconductor Science and Technology.

He participated to the PRIN 2007 funded in 2008, "Physical-chemical properties and structural properties of carbon nanostructures produced by plasma in liquid environments"

In 2008 he was responsible for the local research project: "Polymers and organic materials for energy conversion: from the preparation of the test device"

In 2012 he was Referee for the evaluation of research projects for the "Office of Basic Energy Sciences (BES)", Department of Energy, USA

2012-present: Scientific expert for the evaluation of research quality and of the projects of MIUR (REPRISE)

2015-present: scientific expert for the evaluation of projects for the Agence Nationale de la Recherche (France).

In 2016 he received the Abilitazione Scientifica Nazionale (ASN) as full professor (02/B1, Fisica Sperimentale della Materia)

In 2017 he was a member of the evaluation board for a permanent position as associate professor at the University of Messina (SC 02/B1 – FIS/01)

In 2018 he was a scientific expert for the evaluation of projects for the *King Fahd University of Petroleum & Minerals* (KFUPM), Dhahran, Saudi Arabia.

In 2018 he was a member of the evaluation board for a permanent position as associate professor at the University of Messina (SC 09/E1 – ING/IND31)

In 2019 he was a member of the evaluation board for a RTD position (SC02B1-FIS/01) at the University Mediterranea of Reggio Calabria.

2002- present: head of the Nanotechnology laboratory and of the High-Resolution Microscopy and Spectroscopy Laboratory.

He is a member of the board of the PhD program in “Physics”.

He was the principal investigator of the following projects:

- PON 2010-2012 "Ambition Power".
- Research contract signed with STMICROELECTRONICS S.R.L. Ref CDR.ST.UNIME.28.03.2011.003 “Evaluation of the reliability and lifetime of electronic power devices by time resolved IR scanning microscopy, and study and localization of current induced thermo-mechanical stresses”
- Research contract signed with STMICROELECTRONICS S.R.L., Ref. CDR.ST.UNIME.07.05.2013.016 “Evaluation of the reliability of power electronic devices by means of time-resolved infrared microscopy and study of failure mechanisms due to fracture of the welding points by analysis of the mechanical deformations induced by thermal cycles”
- Project H2020-ECSEL-2016 “WinSic4AP”
- Project H2020-ECSEL-2020 “Progressus”

