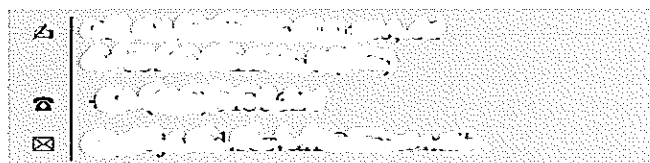


# S. J. Rezvani

## *Curriculum vitae*



### EDUCATION

- 2011 – 2014 **Ph.D in Physics**  
University of Camerino, Camerino, Italy
- 2007 – 2009 **M.Sc in Physics**  
University of Pune, Pune, India
- 2000 – 2004 **B.Sc in Physics**  
AIU University, Science and research, Tehran, Iran

### WORK EXPERIENCE

JULY 2011 – PRESENT

University of Camerino, Italy  
*Ph.D Research Student*

Working on synthesis and Fabrication of novel nanostructure based on silicon and germanium using molecular beam epitaxy and metal assisted etching by nanolithography. The synthesized (bottom up) or fabricated (top down) nanostructures are studied for their structural properties using different structure analysis techniques such as Scanning electron microscopy, transmission electron microscopy, X-ray photoelectron spectroscopy, EDAX, STEM, Etc. Electronic transport and optical properties of the nanostructures have also been studied using low temperature electrical measurements (Hall effect geometry, van der Pauw, etc.) and Photoluminescence spectroscopy.

JANUARY 2014 – PRESENT

University of Camerino, Italy  
*Research assistant*

Working on modification of superconducting properties of the material by their engineering in nanoscale regime. Furthermore the coherent properties of low dimensional superconducting systems have been studying also in the context of hybrid systems, in which a nano-sized metal or a semiconductor (e.g. Silicon/Germanium) is bridged to superconducting metallic contacts. The superconducting wavefunction is able to penetrate in the normal-state bridge by proximity effects and the properties of the superconducting wave-function, as the leakage length or the order parameter profile are being studied both at a theoretical and experimental level, with different materials and geometries.

MARCH 2014 – PRESENT

University of Camerino, Italy  
*Research Assistant*

Working on design and fabrication of the Optomechanical system consisting of a thin membrane deposited by a thin layer of metal by lithography to study their quantum dynamics in a coupled system with an optical cavity.

MARCH 2012 – PRESENT

University of Camerino, Italy  
*University Teaching Assistant*

Worked as a teaching assistant in courses of general physics in biology and biotechnology department.

JANUARY 2012 – MARCH 2013

Edilingua, Castelraimondo, Italy  
*English language teacher*

Worked as an English language teacher in school of foreign languages in Castelraimondo.

2010 – 2011

National Central University, Taiwan  
*Visiting research fellow*

Worked as a visiting researcher on synthesis and in-situ studies of the oxide nanoparticles on metallic supports by use of electron beam deposition and Scanning tunneling microscope and in-situ IR-VIS-UV spectroscopy to study their catalytic behavior and their application in devices such as sensors and batteries. Furthermore using high energy X-ray beam (Synchrotron radiation) to study their structural characteristics at NSRRC.

2009 – 2010

University of Pune, India  
*Junior research fellow*

Worked as a Junior researcher in physics department on synthesis and characterization of metallic nanoparticles by chemical deposition methods such as SILAR, CBD and spin coating. The structural and optical properties of these materials were characterized using methods such as XRD, XPS, UV-Vis Spectroscopy. Furthermore supporting them on metal oxide leads to their study as a model catalyst to be used in ideal catalytic batteries.

2010 – 2011

University of Pune, India  
*University Teaching assistant*

Worked as a teaching assistant in courses of statistical mechanics and Nanolab in physics department.

2007 – 2009

University of Pune, India

### *M.Sc fellow in Physics*

For my thesis I did research on  $TiO_2$  film prepared by thermal oxidation of magnetron sputtered Ti Films on different substrates such as ITO and silicon to attain a p-n junction to study its optical and electrical properties for different purposes like solar cells.

2008 – 2009

University of Pune, India

### *Stage Student*

Worked as a stage student in nanomaterial and nanoscience division on synthesis of metallic nanoparticles by transferred arc plasma.

2005 – 2007

Aryabon pharmaceutical company, Iran

### *Engineering section manager*

Worked as a coordinator and designer of the pharmaceutical clean rooms, in a class ranges from A to D.

2002 – 2007

A.D.A pre-university school, Iran

### *Lecturer*

Worked as a part time lecturer in A.D.A pre university high school of courses of physics and mathematics.

## AWARDS AND RECOGNITIONS

- 2014 **"Borsa di Studio", Inter regional project FAR**  
*University of Camerino, Italy*
- 2011 **Ph.D Fellowship award**  
*University of Camerino, Italy*
- 2010 **Junior researcher Grant**  
*National Central University, Taiwan*
- 2009 **M.R. Bhide Award for the best paper presented**  
*Raman memorial conference, India*
- 2009 **Junior researcher Grant**  
*University of Pune, India*

## CONFERENCE AND SEMINAR PRESENTATIONS

- 2014 **Multi-Condensate Superconductivity and Superfluidity in Solids and Ultra-cold Gases, Camerino, Italy**  
*Poster Presentation*
- 2014 **Workshop on functional and nanostructured material, Camerino, Italy**  
*Oral presentation*
- 2014 **Nanosea 2014, Marseilles, France**  
*Oral Presentation*
- 2013 **Scientific Day of university of Camerino, Italy**  
*Poster Presentation*
- 2013 **International conference on simulation of nanomaterials, ICCMNM, Frankfurt Institute for advanced studies, Germany**  
*Attendance*
- 2013 **Short course on Semiconductor detectors for medical applications, INFN, Florence, Italy**  
*Attendance*
- 2013 **International conference on radiation effect on semiconductor detector and devices, INFN, Florence, Italy**  
*Attendance*
- 2012 **Nanosea2012, Sardinia, Italy**  
*Oral presentation*
- 2012 **Scientific day of University of Camerino, Italy**  
*Poster presentation*
- 2011 **International workshop on advances in nanotechnology, National synchrotron radiation center, Taiwan**  
*Attendance*
- 2010 **International workshop on advanced materials, National chemical lab, India**  
*Poster presentation*
- 2010 **Raman memorial Conference, Pune, India**  
*Paper presentation*
- 2009 **54th Symposium of solid state physics, BARC, Vadodra, India**  
*Paper presentation*
- 2009 **54th Symposium of solid state physics, BARC, Vadodra, India**  
*Poster presentation*

## PUBLICATIONS

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- 2014 **Diffusion Induced effects on geometry of Ge nanowires by MBE**  
S.J. Rezvani, F. Celegato, L. Boarino, L. Favr, I. Berbezier, N. Pinto, *Nanoscale*, 6, 7469-7473.
- 2014 **Doping effect on metal assisted catalytic etched silicon nanowires structure**  
S.J. Rezvani, N. Pinto, L. Boarino, F. Celegato, L. Croin, D. Antonioli, G. Amato, P. Rizzi, *Submitted to Journal of physical chemistry C*
- 2014 **Geometrical frustrations in Ge nanowires grown by MBE**  
S.J. Rezvani, F. Celegato, L. Boarino, L. Favr, I. Berbezier, N. Pinto, *Submitted to Nanoscale research letter*
- 2013 **Influence of Ti film thickness and oxidation temperature on TiO<sub>2</sub> thin film formation via thermal oxidation of sputtered Ti film**  
S.D. Sartale, A.A. Ansari, S.J. Rezvani, *Science in Semiconductor Processing* 16, 2005.
- 2010 **Engineering pattern of MnO<sub>x</sub> Nanoclusters on Al<sub>2</sub>O<sub>3</sub>/NiAl(100) thin films**  
S.J. Rezvani, M.F. Luo, Chou-I Chiang, J. NCUPC, 99, 78
- 2009 **Study on TiO<sub>2</sub> thin films prepared by thermal oxidation of dc magnetron sputtered Ti thin films**  
S.J. Rezvani, A.A. Ansari, S.D. Sartale, J. DAE Solid state physics, Vol 54, M02, 139
- 2009 **Fabrication and characterization of TiO<sub>2</sub>/P-Si heterojunction by thermal oxidation of sputtered Ti films**  
A.A. Ansari, S.J. Rezvani, S.D. Sartale, J. DAE Solid state physics, Vol 54, J40, 963
- U.P **Endotaxial growth of Manganese germanide nanowires by MBE**  
S.J. Rezvani, F. Celegato, L. Boarino, L. Favr, N. Pinto, I. Berbezier
- U.P **Electronic transport measurement of highly porous silicon nanowire**  
S.J. Rezvani, F. Celegato, L. Boarino, E. Enrico, N. Pinto, A. Angelini
- U.P **Electronic transport measurement of Ge nanowires by MBE**  
S.J. Rezvani, F. Celegato, L. Boarino, E. Enrico, N. Pinto
- U.P **Modulation of memory effect in crystalline Mn<sub>5</sub>Ge<sub>3</sub> nanoparticles**  
S.J. Rezvani, F. Celegato, L. Boarino, F. D'Orazio, N. Pinto

## COMMUNICATION SKILLS

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ITALIAN Fair  
ENGLISH Fluent  
PERSIAN Native speaker

## TECHNICAL SKILLS AND COMPETENCES

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Ultra High Vacuum system operation and preparations  
Molecular Beam Epitaxy  
DC/RF magnetron sputtering systems  
Low dimension semiconductor systems (2D, 1D) electrical measurement and preparation (low temperature )  
Nanolithography  
Electron beam lithography  
Optical lithography  
X-Ray techniques such as XPS, XRD  
High energy X-Ray photoemission spectroscopy (Synchrotron radiation)  
Scanning Electron Microscopy  
Atomic Force Microscopy  
Electrochemical, Metal assisted and patterned etching of the semiconductors

## SOFTWARE SKILLS

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Windows  
Linux  
Programming in Basic  
C++  
NI-Labview  
Mathematica  
MS-Office  
Latex, Xetex, L<sup>A</sup>T<sub>E</sub>X

## ASSOCIATIONS

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American chemical society  
Istituto nazionale di Fisica Nucleare (INFN)  
Sezione Perugia  
American Physical Society  
Istituto nazionale di Ricerca metrologica (INRiM), Torino  
Indian Physical society