Dr. V. S. VENDAMANI (V.S.V. Mani)

Research Associate (RA),
School of Physics,
University of Hyderabad,
Gachibowli,
Hyderabad-500046, INDIA.

Sex: FEMALE | DOB: 10-07-1984
Nationality: INDIAN, Religion: Hindu
Mobile: +91-970420 5036
Email: manishavsv@gmail.com/
mani.vsvp@gmail.com

Doctoral Studies

Specialization Experimental Condensed Matter Physics and Semiconductor Physics.
Thesis Title Synthesis, Characterization and Ion Beam Studies of Silicon Nanostructures.

Education

2015-onwards	**Research Associate (CSIR)** University of Hyderabad, Hyderabad Supervisor: Prof. A.P. Pathak
2013-2015	**SRF/Extended-SRF (CSIR)** School of Physics, University of Hyderabad, Hyderabad Supervisor: Prof. A.P. Pathak
2009-2015	**Doctor of Philosophy (Ph.D) (awarded)** Department of Physics, Pondicherry University, Puducherry, India. Supervisors: Dr. S.V.S. Nageswara Rao and Dr. V.V. Ravi Kanth Kumar
2007–2009	**Master of Philosophy (M. Phil.) (Marks: 76.67%)** Department of Physics, Pondicherry University, Puducherry, India.
Specialization	Condensed Matter Physics
Dissertation	Channeling Angular Scans & Effects of Stacking Faults on Positron Channeling – Energy Dependance (18 months) Supervisor: Dr. S.V.S. Nageswara Rao (18 months duration).
2005-2007	**Master of Science M.Sc.) (Marks: 74.72%)** Queen Mary's College (Autonomous), Chennai, India.
Specialization	Nuclear Physics
Dissertation	Website design for Queen Mary's College, Chennai Supervisor: Prof. Mrs. Bhooma (6 months duration).
2001-2004	**Bachelor of Science (B.Sc.) (Marks: 84.05%)** Department of Physics, Sesachala Degree College (Autonomous), Puttur, Andhra Pradesh, India. Dissertation Website design on Robotics, submitted to Sri Venkateswara University, A.P, India.
Subject(s)	Physics, Computer Science and Mathematics.
1999-2001	**Intermediate (10+2) (Marks: 73.50%)** PCN government Junior College, Nagari and Board of Intermediate Education, Hyderabad, Andhra Pradesh, India.
Subject(s)	Mathematics, Physics and Chemistry
1998-1999	**10th Class (Marks: 70.60%)** Z.P. Girls High School, Nagari and Board of Secondary Education, Hyderabad, Andhra Pradesh, India.

Subject(s) Mathematics, Natural &Physical Sciences, Social Sciences and Languages (Telugu, Hindi & English).

Brief summary of my current areas of research:

In the present scenario, a challenging task is to prepare impurity free ultra-small and high density of silicon-compatible nanostructures for nano-technological and nano-photonic applications. The size-tunable optical and electronic properties of Si nanostructures make them potential candidates. Our main objective is to investigate various methods for preparing good quality, microelectronic compatible and tunable light emitting materials. We are mainly focusing on the study of structural, optical, electrical, and sensing properties of silicon nanowires synthesized by different novel techniques like electrochemical etching, electro-less etching, oxide assisted growth. In addition, we are working on the fabrication of quantum dot doped pSi based micro-cavities for obtaining narrower optical emission. These Si-compatible materials are essential for realizing monolithic integration of electronic and opto-electronic devices in a single silicon chip. Another important aspect is to study the role of various irradiation techniques in tuning the optical properties of these technologically important materials. Radiation effects explain the collective energy deposition on nanostructured materials useful for radiation hardened applications.

Research skills

- Synthesis techniques
- Electrochemical/anodic etching
- Electro-less etching
- Annealing Techniques
- Laser Ablation
- Ion beam Radiation Techniques
- Sputtering Techniques

Analytical instruments expertise

- Field Emission Scanning Electron Microscope (FESEM)
- Fourier Transform Infra-Red Spectrometer (FTIR)
- Photoluminescence Spectroscopy
- UV-Vis-NIR spectrophotometer
- X-ray Diffraction spectroscopy
- Gamma Chamber
- Rutherford Backscattering Spectroscopy (RBS) & Elastic Recoil Detection Analysis (ERDA)

Experimental designs

- Electrochemical setup (Teflon)
- I-V measurement setup
- LabView programs for I-V measurement and DBR preparation

Language Skills

Telugu	Mother Tongue
English	Oral: Fluent and Writing: Fluent
Hindi	Oral: Fair and Writing: Fluent
Tamil	Oral: Fluent and Writing: Fair
Malayalam	Oral: Fair and Writing: Poor

Communication Skills

Narrative	Good

Writing	Good command over the scientific writing
Oral	Good
Presentation	Good

Software proficiency

Good	Windows and Origin software, Mathematica, SRIM, SIMNRA, LabView, C++
Intermediate	Computer Hardware, Linex, Oracle, Java script
Basic	Matlab, Fortran

List of Publications

Journals/conference

1. Self-assembly of functionalized graphene nanostructures by one step reduction of graphene oxide using aqueous extract of Artemisia vulgaris; P. Chettri, V.S. Vendamani, A. Tripathi, A.P. Pathak, A. Tiwari, Applied Surface Science 362 (2016) 221–229.
2. Fraxinus paxiana bark mediated photosynthesis of silver nanoparticles and their size modulation using swift heavy ion irradiation; H. Sharma,V.S. Vendamani, A.P. Pathak, and Archana Tiwari, Radiation Physics and Chemistry 117 (2015) 184–190.
3. Blue Luminescent Silicon Nanoparticles Synthesized From Free-Standing Porous Silicon by Ultrasonic Treatment; V. S. Vendamani, A.P. Pathak, and S.V.S. Nageswara Rao, Optical Materials Optical Materials 48 (2015) 66-70.
4. Fabrication of Porous Silicon based Tunable Distributed Bragg Reflectors by Anodic Etching of Irradiated Silicon; V.S. Vendamani, Z. Y. Dang, P. Ramana, A.P. Pathak, V.V. Ravi Kanth Kumar, M.B.H. Breese, and S.V.S. Nageswara Rao, Nucl. Inst. Meth. B 358 (2015) 105-111.
5. Ultra-small Silicon Nanoparticles Generated by Femtosecond Laser Ablation on Nanostructured Porous silicon under Liquid Environment; V. S. Vendamani, Syed Hamad, V. Saikiran, A. P. Pathak, S. Venugopal Rao, V. V. Ravi Kanth Kumar, and S. V. S. Nageswara Rao, J. Mat. Sci. 50 (2015) 1666-1672.
6. One dimensional Silicon Nanostructures Prepared by Oxidized Porous Silicon Under Heat Treatment; V. S. Vendamani, S. V. S. Nageswara Rao, and A. P. Pathak, Appl. Surf. Sci. 320 (2014) 334-338.
7. Femtosecond Ablation of Silicon in Acetone: Tunable Photoluminescence from GeneratedNanoparticles and Fabrication of Surface Nanostructures; S. Hamad, G.K. Podagatlapalli, V. S. Vendamani, S. V. S. Nageswara Rao, A. P. Pathak, S.P.Tewari, and S. Venugopal Rao , J. Physical Chem. C 118 (2014) 7139−7151.
8. 150 MeV Au ion induced modification of Si nanoparticles prepared by laser ablation; V. Saikiran, V.S. Vendamani, S. Hamad, S.V.S. Nageswara Rao, S. Venugopal Rao, and A.P. Pathak, Nucl. Inst. Meth. B 333 (2014) 99–105.
9. Structural and Optical Properties of Porous Silicon Prepared by Anodic Etching of Irradiated Silicon; V. S. Vendamani, A. P. Pathak, and S. V. S. Nageswara Rao, Nucl. Inst. Meth. B 315 (2013) 188-1915.
10. Anharmonic Effects on Positron Channeling Angular Scans and Dechanneling due to Stacking Faults and Platelets, V. S. Vendamani, S. Balamurugan, V. Saikiran, A. P. Pathak, and S. V. S. Nageswara Rao, Rad. Eff. and defects. in solids 167 (2012) 594-606.
11. Ion Beam Studies of Semiconductor Nanoparticles for the Integration of Optoelectronic Devices; S.V.S. Nageswara Rao, V. S. Vendamani, Sandeep K. Satrasala, S.K. Padhe,

Srinadha Rao K, S. Dhamodaran, and A.P. Pathak , AIP Conf. Series 1336 (2011) 332-336.

12. Energy Dependence Relation for Positron Channeling Critical Angle and Dechanneling Probability due to Stacking Faults, V. S .Vendamani, S. V. S. Nageswara Rao, Nucl. Inst. Meth. B 268 (2010) 2312-2317.
13. An Online ERDA Study on SHI-Induced Desorption of Hydrogen from Porous Silicon Prepared by Anodic Etching of H-implanted Silicon; V.S. Vendamani, Saif A. Khan, M. Dhanunjaya, A.P. Pathak, and S.V.S. Nageswara (under Review).
14. Study on SHI-Induced Hydrogen Desorption from Porous Silicon Measured by Online ERDA; V.S. Vendamani, Saif A. Khan, M. Dhanunjaya, A.P. Pathak, and S.V.S. Nageswara Rao (under Review).

International /National Schools Attended

1. Attended the DST-SERC School on Highly Charged ions in Physics, February 11 to March 3, 2013, TIFR, Mumbai.
2. Attended the International School on Ion Beams in Material Science, October 3-8, 2012, IUAC, New Delhi.
3. Attended Ph.D. course modules (Ion beams in Material Science & Ion beams in Semiconductors), October 16 to December 05, 2010, IUAC, New Delhi.
4. Attended the school on Optical Characterization Techniques, June 2-5, 2008, Inter University Accelerator Center (IUAC), New Delhi.

Poster/Oral Presentations

1. Influence of Electronic Excitations on the Stability of Defect Associated Si-H Complexes in Silicon; **oral presented** in Low Energy Ion Beam Workshop, November 7-9, 2015, Institute of Physics, Bhubaneswar, India.
2. Porous silicon as a Seed Material for Preparing Silicon Nanoparticles and Nanostructures; poster presented in International conference on Radiation Effects on Insulators (REI), October 26-31, 2015, Hotel Orchid, Jaipur, India.
3. Irradiation Induced Effects on the Fabrication of Porous Silicon based Tunable DBR Structures; Synthesis of Silicon Nanostructures by Various Novel Techniques for Silicon-compatible Photonic Applications, poster presented in International Symposium on Semiconductor Materials and Devices, February 02-05, 2015, Anna University, India.
4. Fabrication of Porous Silicon based Tunable Distributed Bragg Reflectors by Anodic Etching of Irradiated Silicon, poster presented in Frontiers in Physics, October 17-18, 2014, University of Hyderabad, India.
5. An On-line ERDA Study on SHI Induced Desorption of Hydrogen from Porous Silicon Prepared by Anodic Etching of H-implanted Silicon, **presented oral** in Conference on Application of Accelerators in Research and Industry (CAARI)-2014, May 25-30, 2014, Sun Antonio, Texas, USA.
6. Tunable Resonant Reflected Wavelength of Porous Silicon based DBR Structures Prepared by Radiation Treated Silicon, presented poster in CAARI-2014, May 25-30, 2014, Sun Antonio, Texas, USA.
7. Ultra-small Silicon nanoparticles generated by femtosecond laser ablation on Nanostructured Porous silicon under Liquid environment, presented poster in DAE-BRNS 7th National Symposium on Pulsed Laser Deposition of Thin films and Nanostructured Material (PLD-2013), November 14-16, 2013, IIT Kharagpur, West Bengal, India.

8. Participated in Awareness workshop on Neutron Scattering, October 28-30, 2013, Hyderabad, India.
9. One Dimensional Silicon Nanostructure Synthesized by Heat Treated Porous silicon Template, presented oral in 7th International Conference on Materials for Advanced Technologies (ICMAT- 2013), June 30-July 5, 2013, Suntec, Singapore.
10. Swift Heavy Ion Induced and Rapid Thermal Annealing Effects on Optical Properties of Porous Silicon, presented poster in 7th International Conference on Materials for Advanced Technologies (ICMAT-2013), June 30-July 5, 2013, Suntec, Singapore.
11. Structural and Optical properties of Porous Silicon prepared by anodic etching of Irradiated Silicon, oral and poster presented in International conference on Swift Heavy Ions in Materials Engineering and Characterization, October 9-12, 2012, IUAC, New Delhi.
12. Porous Silicon for Electronic and Optoelectronic Applications, poster presented in Frontiers in Physics, September 27-29, 2012, University of Hyderabad, India.
13. Participated on the conference on Swift Heavy Ions in Materials Engineering and Characterization (SHIMEC), October 6-9, 2010, IUAC, New Delhi.
14. Energy dependence relation for positron channeling critical angle and dechanneling probability due to stacking fault, poster presented in India Singapore Joint Physics Symposium, February 19-21, 2010, Hyderabad.