CURRICULAM VITAE



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EDUCATION

PhD Physics, University of Hyderabad, India (July 2011)

MSc Physics, Universityof Hyderabad, India (2005)

BSc, Kakatiya University, India (2003)

JOURNAL PUBLICATIONS

1. Structural studies of Ge nanocrystals embedded in SiO_2 matrix, **N. Srinivasa Rao**, S. Dhamodaran, A.P. Pathak, P.K. Kulriya, Y.K. Mishra, F. Singh, D. Kabiraj, J.C. Pivin, D.K. Avasthi, **Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms** Volume :264 / 249 / 2007
2. Swift heavy-ion modification of semiconductor heterostructures, A P Pathak, S Dhamodaran, N Sathish and **N Srinivasa Rao**, **Radiation Effects & Defects in Solids** Volume :162 / 131 / 2007
3. Synthesis and characterization of nc-Ge embedded in SiO_2/Si matrix, **N Srinivasa Rao**, S Dhamodaran, A P Pathak, B K Panigrahi, K G M Nair, B Sundaravel, J C Pivin, D K Avasthi, **Radiation Effects and Defects in solids** Volume :164 / 452 / 2009
4. Synthesis of Ge nanocrystals by atom beam sputtering and subsequent rapid thermal annealing, **N. Srinivasa Rao**, A.P. Pathak , N. Sathish, G. Devaraju, V. Saikiran, P.K. Kulriya, D.C. Agarwal, G. Sai Saravanan, D.K. Avasthi, **Solid State Communications** Volume :150 / 2122 / 2010
5. SHI induced re-crystallization of Ge implanted SiO2 films, **N. Srinivasa Rao**, A.P. Pathak, N. Sathish, G. Devaraju, S.A. Khan, K. Saravanan, B.K. Panigrahi, K.G.M. Nair, D.K. Avasthi **Nuclear Instruments and Methods in Physics Research B** Volume :268 / 1741 / 2010
6. Growth and Characterization of Ge nanocrystals prepared by using microwave annealing, **N Srinivasa Rao**, A P Pathak, G Devaraju, V saikiran, **Vacuum** Volume :85 / 927 / 2011
7. Electronic Stopping dependence of Ion beam induced modifications in GaN, G Devaraju, A P Pathak, N Srinivasa Rao, V Saikiran, A I Titov, **Nuclear Instruments and Methods in Physics Research B** Volume :269 / 890 / 2011
8. Photoluminescence and Photoluminescence excitation studies in 80 MeV Ni ion irradiated MOCVD grown GaN, G Devaraju, A P Pathak, **N Srinivasa Rao**, V Saikiran, Francesco

Enrichi, E Trave, **Nuclear Instruments and Methods in Physics Research B** Volume :269 / 1925 / 2011

9. Ion beam irradiation effects on Ge nanocrystals synthesized by using RF sputtering followed by RTA, V. Saikiran, **N. Srinivasa Rao**, G. Devaraju, , G.S. Chang, Anand P. Pathak, **Nuclear Instruments and Methods in Physics Research B** Volume :315 / 161 / 2013
10. Ion-beam-treated strained AlGaN/GaN multi-quantum wells: HAADF-STEM, HRTEM, Raman and HRXRD characterizations, G. Devaraju, A P Pathak, **N Srinivasa Rao**, V Saikiran, D Wang, T Scherer, A K Mishra and C Kübel, **Radiation Effects & Defects in Solids** Volume :167 / 612 / 2012
11. SHI irradiation induced effects in functionalized MWCNTs, V Saikiran, A P Pathak, **N Srinivasa Rao**, G Devaraju, Joyashish D, I Kyriakou and D Emfietzoglou, **Radiation Effects & Defects in Solids** Volume :167 / 569 / 2012
12. Ion beam mixing effects in nearly lattice matched AlInN/GaN hetero structures by swift heavy ion irradiation, G Devaraju, S V S Nageswara Rao, **N Srinivasa Rao**, V Saikiran, T K Chan, T Osipowicz, M B H Breese and A P Pathak, **Radiation Effects & Defects in Solids**Volume :167 / 506 / 2012
13. Synthesis and Tailoring of GaN nanoparticles by RF magnetron sputtering at room temperature, G Devaraju, A P Pathak, **N Srinivasa Rao**, V Saikiran, S V S Nageswara Rao and A I Titov , **Radiation Effects & Defects in Solids** Volume :167 / 659 / 2012
14. Formation of Ge NCs from ion-irradiated GeO_2 NCs by swift Ni ion beam, V. Saikiran, **N. Srinivasa Rao,** G. Devaraju, and A. P. Pathak, **Nuclear Instruments and Methods in Physics Research B** Volume :312 / 1 / 2013
15. SHI irradiation fluence and energyloss dependence effects on Ge NCs with different initial sizes embedded in SiO_2, V. Saikiran, **N. Srinivasa Rao**, G. Devaraju, G. S. Chang, and A. P. Pathak, **Nuclear Instruments and Methods in Physics Research B** Volume :323 / 14 / 2014
16. Ion beam studies of Hafnium based alternate high-k dielectric films deposited on silicon, N. Manikanthababu, T.K. Chan, A.P. Pathak, G. Devaraju, **N. Srinivasa Rao**, P. Yang, M.B.H. Breese, T. Osipowicz, S.V.S. Nageswara Rao, **Nuclear Instruments and Methods in Physics Research B** Volume :332 / 389 / 2014

CONFERENCE PUBLICATIONS

1. SHI effects on Ge+SiO_2 composite films prepared by RF sputtering, **N Srinivasa Rao**, A P Pathak, N Sathish, G Devaraju, V Saikiran, ***AIP Conf. Proc, Vol 1336,* 341, (2011)**

2. Characterization of GeO_2 Nano crystals prepared by microwave annealing, V Saikiran, **N Srinivasa Rao,** G Devaraju and A P Pathak, ***AIP Conf. Proc, Vol 1336, 264, (2011)***

3. Band Gap Engineering of Nano Scale AlGaN Epitaxial Layers by Swift HeavyIon Irradiation, N Sathish, G Devaraju, **N Srinivasa Rao**, A P Pathak, A Turos, S A Khan, D K Avasthi, E Trave and P Mazzoldi, ***MRS Symposium Proceedings, Vol 1181, 53, (2009)***

4. Ion Beam Synthesis of Ge Nano crystals Embedded in SiO_2 Matrix, **N Srinivasa Rao**, A P Pathak, D Kabiraj, S A Khan, B K Panigrahi, K G M Nair and D K Avasthi, ***MRS Symposium Proceedings, Vol 1181, 99, (2009)***

5. Analysis of defects in heterostructures by RBS/Channeling, S Dhamodaran, N Sathish, **N Srinivasa Rao**, A P Pathak, R Muralidharan, B Sundaravel, K G M Nair, ***Proceedings of DAE Solid State Physics Symposium, Vol 51, 777, (2006)***

6. RBS, XRD, Raman and AFM Studies of Microwave Synthesized Ge Nanocrystals, **N Srinivasa Rao**, A P Pathak, G Devaraju, V Saikiran, S V S Nageswara Rao, ***MRS Proceedings, Vol 1354, (2011)***

7. Ion Beams for synthesis and modification of nanostructures in semiconductors, A P. Pathak, **N. Srinivasa Rao**, G. Devaraju, V. Saikiran and S. V. S. Nageswara Rao, ***MRS Proceedings, Vol 1354, (2011)***

8. Structural Changes Induced by Swift Heavy Ion Beams in tensile strained $Al_{(1-x)}In_xN$ /GaN Hetero-structures, G Devaraju, A P Pathak, **N Srinivasa Rao**, V Saikiran, N Sathish and S V S Nageswara Rao, ***MRS Proceedings, Vol 1354, (2011)***

RESEARCH PROJECTS

1. I have been sanctioned a "Science and Engineering Research Board" (SERB) sponsored project (Young Scientist project Award) entitled **"Tuning the structural, optical and electrical properties of Au nanocrystals embedded in dielectric oxide layers for nonvolatile memory applications**" by SERB, New Delhi. The duration of the project is June 2014 - May 2017 and the total sanctioned amount is **Rs. 23,20,000** only.

2. Beam Time Research Project: **Ion beam induced modification of structural and optical properties of Germanium oxide thin films and nanocrystals** (IUAC, New Delhi). (In progress)

COURSES TAUGHT DURING LAST THREE YEARS

- Electrodynamics
- Physics of Nanomaterials
- Vacuum Science and Thin film Technology
- Classical Mechanics
- B Tech (Physics)
- Lab courses (B Tech and M Sc)

BOOKS PUBLISHED

Synthesis and Characterization of nc-Ge using Ion Beam techniques (LAMBERT Academic Publishing GmbH & Co. KG, Germany, **ISBN 978-3-8454-7144-0**) (Srinivasa Rao N & Anand P Pathak), 2011

Conferences/Seminars/Short Term Courses/Workshops Organized

S. No.	Category	Title	From	To	Role
1.	Conference	National Conference on Thermophysical Properties	14 Dec 2015	16 Dec 2015	Co-Convener
2.	Workshop	One day Workshop on Nuclear Science and Technologies	24 Feb 2015	24 Feb 2015	I am one of the coordinators
3.	Short Term Course	Characterization of Materials	17 Jun 2013	21 Jun 2013	I am one of co-coordinators

INSTITUTE RESPONSIBILITIES

PRESENT:

- Faculty Coordinator for National & International Collaboration (May 2015 to till date)
- IMPRINT MNIT domain leader for "Nanotechnology Hardware" subject (Dec 2015 to till date)
- DPGC Convenor, Department of Physics (From 1st Jan 2016 to till date)

PAST:

- Adjunct Faculty, Materials Research Centre (August 2013-August 2015)
- Faculty Co-coordinator for National & International Collaboration (June 2013 to May 2015)
- Faculty Co-coordinator for Training & Placement Cell (Sep 2012 to June 2013)

ACADEMIC VISITS (ABROAD)

1. University of Saskatchewan, Saskatoon, Canada
2. University of Calgary, Calgary, Canada
3. York University, Toronto, Canada.

WORK EXPERIENCE

- **Current Position:** Currently working as an Assistant Professor, Department of Physics, MNIT Jaipur from 25th July 2012.
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- **Worked as a Dr. D S Kothari post doctoral fellow** on the project entitled "Synthesis and characterization of high k dielectric films and their use as host matrix for embedded Ge nanocrystals" from August 2011 to July 2012.

- **Worked as a Project Associate** on " Ion Beam Synthesis of Semiconductor nanocrystals and modification of III-V Semiconductor Multi Quantum Wells under SHI Irradiation" (February 2011 - August 2011)

- **Teaching Assistant during Ph D** (2008-2010)

  - ✓ Advanced Classical Mechanics (One semester)
  - ✓ Introduction to Solid State Physics (One semester)
  - ✓ Electricity and Magnetism (Two semesters)

AWARDS RECEIVED

- Science and Engineering Research Board Young Scientist Project
- Dr. D. S. Kothari Postdoctoral Fellowship
- Council of Scientific and Industrial Research – University grants commission – National eligibility test (CSIR-UGC-NET) Research Fellowship for years 2005 – 2010
- Selected as one of the top 20% candidates for CSIR-UGC National eligibility test for year 2005.

ACADEMIC ACHIEVEMENTS

- School topper in 10^{th} Class
- College topper in Intermediate
- College Second in Graduation

Ph. D. Thesis Supervision: Two Ph D students **Mr. Mahendra Singh Rathore** and **Mr. Arun Vinod** are working under my supervision.

S. No.	Student Name	Title	Year	Status
1.	Mahendra Singh Rathore	Growth and Modification of Structural, Optical and Electrical Properties of GeO_2 Thin Films	2013	In progress
2.	Arun Vinod	Structural, Optical and Electrical Properties of Metal Nanocrystals Embedded in Dielectric Oxide Layers for Various Applications	2014	In progress

PG Thesis Supervision:

S. No.	Student Name	Title	Year	Status
1.	Sumitra Sharma	Synthesis and Comparative Study of Co-Doped ZnO Nanoparticles and ZnO Thin Films	2013	Completed
2.	Jeevanshu Jain	Synthesis of Stable Copper Nanoparticles for Antibacterial Film Furnishing	2014	Completed
3.	Saiyad Sohail Ahmed Zaidi	Structural Studies of ZnO Thin Films Deposited by RF Sputtering Technique	2014	Completed
4.	Navita Sharma	Surface Modification of CoS Nanocomposite Polymer Membrane	2014	Completed

5.	Trayambak Singh	Structural and Optical Properties of Spin Coated ZnO Thin Films	2015	Completed
6.	Shweta Yadav	Germanium Oxide Thin Film Preparation by Liquid Phase Deposition Method	2015	Completed

CONFERENCES / WORKSHOPS ATTENDED:

1. Delivered an ***Invited Talk*** during "23rd International Conference on Application of Accelerators in Research and Industry (**CAARI-2014**)" **San Antonio, Texas, USA** during May 25-30, 2014.
2. **Invited talk** at the Workshop on " Ion Beam Science and Technology – Looking Ahead", The **Huntsville Ion Beam Institute**, **Huntsville, AL, USA**, Aug 4^{th} – 6^{th}, 2010
3. Attended 25th International Conference on Atomic Collisions in Solids (ICACS-25)**, Kyoto, Japan, during 21st -25th October 2012.**
4. Attended 8th International symposium on Swift Heavy Ions in Matter (SHIM2012), **Kyoto, Japan, during 24th -27th October 2012.**
5. Attended International conference on Swift Heavy Ions in Materials Engineering and Characterization" (SHIMEC 2012), New Delhi, October 9-12, 2012.
7. At the "21^{st}International Conference on the Application of Accelerators in Research and Industry", **Fort Worth, Texas, USA**, Aug 8^{th} – 13^{th}, 2010.
8. Poster at the19^{th} International conference on "Ion Beam Analysis", **University of Cambridge**, **Cambridge, UK,** September 7^{th} - 11^{th}, 2009
9. Poster at "International Conference on Nanoscience and Technology (ICONSAT - 2012) which was held from January 20^{th} to 23^{rd}, 2012 at Hyderabad, India
10. Attended 3 day course on "Thin Film Solar PV Technologies" organized by National Center for Photo Voltaic Research and Education (NCPRE) and Indian Institute of Technology, Bombay (IITB) during 15^{th} to 17^{th} Sep 2011, Mumbai
11. Poster at "International Conference on Nanoscience and Technology, Cochin Nano-2011" during August 14-17, 2011 in Cochin, India
12. Poster at "50^{th} International conference of Electron Microscopy", DMRL, Hyderabad, from 6^{th} to 8^{th} July 2011
13. Poster at "Workshop on Physics at Small Scales" School of Physics, University of Hyderabad during 18-19 March 2011
14. Poster at "Indo-Singapore Joint Physics Symposium" University of Hyderabad, Hyderabad, during 19^{th} to 21^{st} February 2010
15. Poster at the "International Conference on Advanced Nanomaterial's and Nanotechnology" (ICANN 2009) , IIT Guwahati, India, December 9^{th} to 11^{th}, 2009
16. Poster at the Indo-French conference on "Nano-Structuring by Ion Beams" at Bhubaneswar, India, 26^{th} February to 1^{st} March 2009
17. Oral at "The 18th International Photovoltaic Science and Engineering Conference and Exhibition", Science City Convention Center, Kolkata, January 19^{th} to 23^{rd}, 2009
18. Attended the "International School on Optoelectronic Materials and Devices" (OPTOSCHOOL 2008) at TIFR, Mumbai from 27^{th} July to 2^{nd} August 2008
19. Attended a workshop on "Gallium Nitride: Growth, Characterization and Device applications", GAETEC, Hyderabad on 13^{th} June,2008

20. Attended DAE BRNS seminar cum workshop on “Materials Characterization and Surface Modification in Research and Industry Using Ion Accelerators (MCIA)” at IOP, Bhubaneswar during March 31st to April 4th, 2008
21. Attended the “Workshop on Low Temperature Physics” which was held at University of Hyderabad during 14th and 15th of March 2008
22. Attended workshop on “Advanced X-Ray Techniques for Characterization of Nano Materials (XTNM-2008)” at DMRL, Hyderabad from 27th to 29th Feb 2008
23. Poster at “International Conference on Ion Beam Analysis 2007 (IBA2007)”, University of Hyderabad, Hyderabad, September 23rd to 28th, 2007
24. Attended and presented a research proposal during the Workshop on LEIBF at IUAC, New Delhi from February 21st to 22nd, 2007
25. Presented a poster in DAE-SSP Symposium 2006 held in Barakatullah University, Bhopal between 26th and 30th Dec 2006
26. Attended the workshop on Nanotechnology with Ion beams and possible applications at IUAC, New Delhi from October 31st to 1st November 2006.