

CURRICULUM VITAE

DR. SHIV POOJAN PATEL

Assistant Professor
Department of Pure & Applied Physics
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Academic Qualifications:

- Ph.D. (Physics):** Thesis Title: “Studies on Nanostructured Thin Films and Their Swift Heavy Ion Induced Modifications” (2012).
University: Physics Department, University of Allahabad, Prayagraj
Institution: Inter University Accelerator Centre (IUAC), New Delhi
- CSIR NET-JRF:** Physical Sciences (2009)
- GATE:** Physics (2009)
- Pre-Ph.D. Course Work:** Inter University Accelerator Centre (IUAC), New Delhi (2006-2007)
- M. Sc. (Physics):** Physics Department, University of Allahabad, Prayagraj (2006)
(Specialization in Condensed Matter Physics)
- B. Sc. (Physics, Geog., Math):** Faculty of Sciences, University of Allahabad, Prayagraj (2004)

Professional Experience (9 Years):

- **Assistant Professor** (February, 2013- Till Now): Department of Pure & Applied Physics, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, India
- **Research Associate** (December, 2012 – February, 2013): Pelletron Accelerator Group/Material Science, Inter-University Accelerator Centre (IUAC), New Delhi, India.
- **Post-Doctoral Fellow** (November, 2011–November, 2012): Experimental Condensed Matter Division, Institute of Physics, Bhubaneswar, India
- **Doctoral Researcher** (February, 2007 – November, 2011): University of Allahabad, Allahabad, India and Materials Science Group, Inter-University Accelerator Centre (IUAC), New Delhi, India

Research Interest:

- Ion Induced Materials modifications and Ion beam analysis,
- Nanopatterning of surfaces by energetic ions, Thermoelectric materials,
- Crystallization of amorphous semiconductor under ion irradiation.
- Thin Films, Thermoelectric Materials, Diluted Magnetic Semiconductors, Photovoltaics.

Teaching Interest:

- Accelerator Physics, Materials Modification, Synthesis and Characterization with Ion Beam
- Vacuum Pumps and Gauges
- Thin Films Fabrication Techniques
- Semiconductor Physics, Basic Electronics, Electronic Circuits
- Electricity and Magnetism, Thermal Physics and Thermodynamics

Technical Experience

- (a) **Ion Beam Based Experimental Nuclear Techniques:** Installation, Maintenance and user support of **RBS, PIXE, ERDA** facility with **3.0 MV Pelletron Accelerator** at GGV, Bilaspur. Having knowledge of **XRUMP**, and **SIMNRA** simulation codes for processing the RBS/ERDA data.
- (b) Training operation of the **15 UD Pelletron Tandems Accelerators** and **1.7 MV Pelletron Tandems Accelerator** at IUAC, New Delhi and having good knowledge about its working principle and physics.
- (c) **Thin Film Growth Techniques:** Pulse Laser Deposition (Excel Instruments) with Compex Pro 201 Laser (Coherent Lamda Physik GmbH)
RF/DC Magnetron Sputtering (Excel Instruments)
- (d) **Well Known Characterization Techniques:** X-Ray Diffraction (XRD), Atomic Force Microscopy (AFM), UV-Vis Spectroscopy, Transmission Electron Microscopy (TEM), Scanning Electron Microscopy (SEM), Photoluminescence (PL), Raman, and Fourier Transform Infrared (FTIR) Spectroscopy, Superconducting Quantum Interference Devices (SQUID) Magnetometry, and Electron Spin Resonance (ESR).

Ongoing/Completed Project

1. **Project Title: Ion beam assisted metal induced crystallization of a-semiconductors.** (Amount= Rs. 6 Lakh) IUAC, New Delhi Sponsored UFUP project (**IUAC/XIII.7/UFR-62315**). Sanctioned/Ongoing
2. **Project Title: Tailoring the Thermoelectric Properties of SnTe Nanocrystalline Thin Films using Ion Irradiation.** (Amount= Rs. 6 Lakh) IUAC, New Delhi Sponsored UFUP project (**IUAC/XIII.7/UFR-62315**). Completed
3. **Project Title: Metal Induced Crystallization of Amorphous Semiconductors under Swift Heavy Ion Irradiation.** (Amount= Rs. 6 Lakh) IUAC, New Delhi Sponsored UFUP project (**IUAC/XIII.7/UFR-58308**). Completed

Research Publications (31+09=40)

In International Journals (=31)

1. G. Maity, R. P. Yadav, R. Singhal, P. K. Kulriya, A. Mishra, T. Som, S. Dhar, D. Kanjilal, and **Shiv. P. Patel,*** “*Influence of fractal and multifractal morphology on the wettability and reflectivity of crystalline-Si thin film surfaces as photon absorber layers for solar cell*”, **J. Appl. Phys.** **129** (2021) 045301. (**Impact Factor. 2.54**) ISSN: 0021-8979 (print); 1089-7550 (web).
2. G. Maity, S. Ojha, G.R. Umopathy, **Shiv P. Patel,** Anter El Azab, Kailash Pandey, Santosh Dubey, “*Growth of low resistive nickel mono-silicide phase under low energy Si ion irradiation at room temperature*”, **Thin Solid Films** **733** (2021) 138826. (**Impact Factor. 2.183**) ISSN: 0040-6090.
3. Anand Pandey, Mulayam Patel, Dharendra Chaudhary, **Shiv P. Patel,** L. Sowjanya Pali; Ashish Garg, Lokendra Kumar, **Journal of Physics D: Applied Physics** **54** (2021) 275502. (**Impact Factor. 3.207**) ISSN: 0022-3727 (print); 1361-6463 (web)
4. Dharendra K. Chaudhary, Punit K. Dhawan, **Shiv P. Patel,** H.P. Bhasker, “*Large area semi-transparent inverted organic solar cells with enhanced operational stability using TiO₂ electron transport layer for building integrated photovoltaic devices*”, **Materials Letters** **283** (2021) 128725. (**Impact Factor. 3.423**) ISSN: 0167-577X
5. G. Maity, S. Dubey, Anter El-Azab, R. Singhal, S. Ojha, P. K. Kulriya, S. Dhar, T. Som, D. Kanjilale and **Shiv P. Patel ***, “*An assessment on crystallization phenomena of Si in Al/a-Si thin films via thermal annealing and ion irradiation*”, **RSC Advances**, **10** (2020) 4414-4426. (**Impact Factor. 3.361**) ISSN: 2046-2069.
6. G. Maity, S. Ojha, S. Dubey, P. K. Kulriya, I. Sulania, S. Dhar, T. Som, D. Kanjilal and **Shiv P. Patel ***, “*Crystallization of Ge in ion-irradiated amorphous-Ge/Au thin films*”, **CrystEngComm** **22** (2020) 666. (**Impact Factor. 3.545**) ISSN: 1466-8033.
7. Saurabh Yadav, S. Dash, A. K. Patra, G. R. Umopathy, S. Ojha, **Shiv P. Patel,** R. Singh, and Y. S. Katharria, “*Effects of Energetic Ion Irradiation on β -Ga₂O₃ Thin Films*”, **ECS Journal of Solid-State Science and Technology** **9** (2020) 045015. (**Impact Factor. 2.070**) ISSN: 2162-8769 (print), 2162-8777 (web).
8. Ashok Raj Patel, Geetika Patel, Gurupada Maity, **Shiv P. Patel,*** Sumantra Bhattacharya, Anjaneyulu Putta, and Subhash Banerjee, “*Direct Oxidative Azo Coupling of Anilines Using a Self-Assembled Flower-like CuCo₂O₄ Material as a Catalyst under Aerobic Conditions*”, **ACS Omega** **5** (2020) 30416–30424. (**Impact factor: 3.512**) ISSN: 2470-1343 (print); 2470-1343 (web).
9. K. Ghosh, Rakesh K. Pandey, **Shiv P. Patel,** T. Trivedi, and P. K. Bajpai, “*Comparable nuclear and electronic energy loss effect of Au²⁺ irradiation on structural, surface morphological, optical and phonon properties of Al:ZnO thin films*”, **Nuclear Inst. and Methods in Phys. Research B** **459** (2019) 22-28. (**I.F. 1.377**) ISSN- 0168-583X.
10. G. Maity, R. Singhal, S. Dubey, S. Ojha, P.K. Kulriya, S. Dhar, T. Som, D. Kanjilal, **Shiv P. Patel***, *Aluminum induced crystallization of amorphous Si: Thermal annealing and ion irradiation process*, **Journal of Non-Crystalline Solids**, **523** (2019) 119628. (**Impact Factor 3.531**) ISSN: 0022-3093.

11. G. Maity, Sunil Ojha, I. Sulania, K. Devrani, **Shiv P. Patel***, *Fractal characterizations of energetic Si ions irradiated amorphized-Si surfaces*, **Surface and Interface Analysis** **51** (2019) **817-825**. (Impact Factor: 1.607) ISSN:1096-9918
12. Prashant Sharma, Padivattathumana Maya, Satyaprasad Akkireddy, Prakash M. Raole, Anil K. Tyagi Asha Attri, Pawan K. Kulriya, Parmendra K. Bajpai, Sudhir Mishra, **Shiv P. Patel**, Tarkeshwar Trivedi, K. B. Khan and Shishir P. Deshpande, Effect of Heavy Mass Ion (Gold) and Light Mass Ion (Boron) Irradiation on Microstructure of Tungsten, **Microscopy and Microanalysis** (2019). (Impact Factor 4.127) ISSN: 1431-9276 (Print), 1435-8115 (Online). DOI: <https://doi.org/10.1017/S1431927619000667>
13. P. N. Maya, Prashant Sharma, A. Satyaprasad, Saurabh Mukherjee, A. K. Tyagi, Sudhirsinh Vala, P. V. Subhash, A. Attri, Pawan Kumar Kulriya, Parmendra Kumar Kumar Bajpai, P. M. Raole, V. Karki, M. Singh, R. Kumar, Archana Lakhani, P. Kikani, Pratipalsinh A. Rayjada, M. Abhangi, Kedarmal, **Shiv P. Patel**, Tarkeshwar Trivedi, K Saravanan, S Kannan, C David, P K Pujari, Manoj Warriar, Sameer Khirwadkar and Shishir Deshpande, *Evaluation of tungsten as divertor plasma-facing material: Results from ion-irradiation experiments and computer simulations*, **Nuclear Fusion** **59** (2019) **076034**. (Impact Factor: 3.179) Online ISSN: 1741-4326, Print ISSN: 0029-5515.
14. **Shiv P. Patel,*** J.C. Pivin. G. Maity, R.P. Yadav, R. Chandra, D. Knajilal, and Lokendra Kumar, *Microstructural and surface morphological studies on Co doped ZnS diluted magnetic semiconductor thin film*, **Journal of Materials Science: Materials in Electronics** **29** (2018) **13541-13550**. (I.F. 2.478) ISSN: 0957-4522 (Print) 1573-482X (Online)
15. A. R. Maridass, S. S. J. Xavier, L. Priya, S. Anbarasu, P. K. Bajpai, Shiva Poojan Patel & D. Prem Anand, *Crystal growth and characterization of Au³⁺ ion irradiated 2-amino-5-nitropyridinium hydrogen oxalate (2A5NPHO)*, **Molecular Crystals and Liquid Crystals**, **664** (2018) **195-217**. (I. F. 0.896) Print ISSN: 1542-1406/ Online ISSN: 1563-5287.
16. A.P. Gnana Prakash, V. N. Hegde, T. M. Pradeep, N. Pushpa, P.K. Bajpai, **S. P. Patel**, T. Trivedi, J.D. Cressler, *5 MeV Proton Irradiation Effects on 200 GHz Silicon-Germanium Heterojunction Bipolar Transistors*, **Radiation Effects and Defects in Solids**, **172** (2017) **922-930**. (I.F. 1.141) Print ISSN: 1042-0150/Online ISSN: 1029-4953
17. A.P. Gnana Prakash, T. M. Pradeep, V. N. Hegde, N. Pushpa, P.K. Bajpai, **S. P. Patel**, T. Trivedi, K.G. Bhusan, Comparison of effect of 5 MeV proton and Co-60 gamma irradiation on silicon NPN rf power transistors and N-channel depletion MOSFETs, **Radiation Effects and Defects in Solids**, **172** (2017) **952-963**. (I.F. 1.141) Print ISSN: 1042-0150/Online ISSN: 1029-4953
18. T. Sehgal, A. Semwal, G. Maity, **Shiv P. Patel***, *Hydrophilic Modifications of PVDF Membranes via swift heavy ion irradiations*, **Surface Engineering**, **34** (2018) **158-164**. (I.F. 3.169) Print ISSN: 0267-0844 Online ISSN: 1743-2944.
19. T. Trivedi, **Shiv P. Patel***, P. Chandra, P.K. Bajpai, *Ion beams Facilities at the National Centre for Accelerator Based Research Using a 3.0 MV Pelletron Facility*, **Physics Procedia** **90** (2017) **100-106**. ISSN: 1875-3892.
20. Manojit De, **Shiv P. Patel**, H. S. Tewari, *Strain Induced Structural Phase Transformation NaNbO₃ doped BiFeO₃*, **Journal of Materials Science: Materials in Electronics** **28** (2017) **6928–6935**. (I.F. 2.478) ISSN: 0957-4522 (Print) 1573-482X (Online).

21. **Shiv P. Patel,*** J. C. Pivin, R. Chandra, D. Kanjilal, and Lokendra Kumar, *Intrinsic Defects and Structural Phase of ZnS Nanocrystalline Thin Films: Effects of Substrate Temperature*, **Journal of Materials Science: Materials in Electronics** 27 (2016) 5640–5645. (I.F. 2.478) ISSN: 0957-4522 (Print) 1573-482X (Online).
22. C.R.K. Mohan, Ranajit Dey, **Shiv P. Patel**, Rakesh K Pandey, M. P Sharma and P. K. Bajpai, “Effects of swift heavy ion irradiation on dielectric relaxation and conduction mechanism in $Ba_{0.90}Sr_{0.10}TiO_3$ ”, **Nuclear Inst. and Methods in Phys. Research B** 372 (2016) 50–57. (I.F. 1.377) ISSN- 0168-583X.
23. L. Kumar, R. Sethi, Dharendra K. Chaudhary, Mahesh Kumar and **Shiv P. Patel***, “Morphological Studies on Ag Doped CdZnS Alloy Nanostructures”, **Materials Focus** 5 (2016) 146-153. ISSN- 2169-429X.
24. **Shiv P. Patel,*** J. C. Pivin, R. Chandra, D. Kanjilal, and Lokendra Kumar, “Ferromagnetism in Ni Doped ZnS Thin Films: Effects of Ni Concentration and Swift Heavy Ion Irradiation” **Vacuum** 111 (2015) 150-156. (I.F. 3.627) ISSN- 0042-207X.
25. **Shiv P. Patel,*** J. C. Pivin, M. K. Patel, Jonghan Won, Ramesh Chandra, D. Kanjilal, and Lokendra Kumar, “Defects Induced Magnetic Transition in Co Doped ZnS Thin Films: Effects of Swift Heavy Ion Irradiation” **Journal Magnetism and Magnetic Materials** 324 (2012) 2136-2141. (I.F. 2.993) ISSN- 0304-8853.
26. **Shiv P. Patel,*** J. C. Pivin, A. K. Chawla, Ramesh Chandra, D. Kanjilal, and Lokendra Kumar, “Room temperature ferromagnetism in $Zn_{1-x}Co_xS$ thin films with wurtzite structure”, **Journal Magnetism and Magnetic Materials** 323 (2011) 2734–2740. (I.F. 2.993) ISSN- 0304-8853.
27. **Shiv P. Patel,*** D. Kanjilal, and Lokendra Kumar, “Nanopatterning of ZnS Thin Films Surfaces by keV Ion Beam Irradiation”, **Surface & Coatings Technology** 206 (2011) 487-491. (I.F. 4.158) ISSN- 0257-8972.
28. **Shiv P. Patel,*** S. A. Khan, A. K. Chawla, Ramesh Chandra, J. C. Pivin, D. Kanjilal, and Lokendra Kumar, “Structural Phase Diagram for ZnS Nanocrystalline Thin Films under Swift Heavy Ion Irradiation”, **Physica B: Condensed Matter** 406 (2011) 4150-4154. (I.F. 2.436) ISSN- 0921-4526.
29. **Shiv P. Patel,*** A. K. Chawla, Ramesh Chandra, Jai Prakash, P. K. Kulriya, J. C. Pivin, D. Kanjilal, and Lokendra Kumar, “Structural phase transformation in ZnS nanocrystalline thin films by swift heavy ion irradiation”, **Solid State Communications** 150 (2010) 1158-1161. (I.F. 1.804) ISSN- 0038-1098.
30. **Shiv P. Patel,*** J. C. Pivin, V. V. Siva Kumar, A. Tripathi, D. Kanjilal, and Lokendra Kumar, “Grain growth and structural transformation in ZnS nanocrystalline thin films”, **Vacuum** 85 (2010) 307-311. (I.F. 3.627) ISSN- 0042-207X.
31. **Shiv P. Patel,*** L. Kumar, A. Tripathi, Y. S. Katharria, V.V. Siva Kumar, I. Sulania, P. K. Kulriya, D. Kanjilal. “Formation of ZnS nanostructures in SiO_2 matrix by RF sputtering”, **AIP conference proceeding**, 1147 (2009) 297-302. (DOI: [10.1063/1.3183447](https://doi.org/10.1063/1.3183447)). ISBN-: 978-0-7354-0684-1, ISSN-: 0094-243X.

In Conference Proceedings (=09)

1. T. Trivedi, **S. P. Patel**, C. Mallik, Rakesh Kumar and P. K. Bajpai, “*Development of Research Facilities using High Current Low Energy 3.0 MV Pelletron Accelerator at NCAR, Bilaspur*”, **DAE-BRNS Symp. Nucl. Phys. 60 (2015) 930-931. ISBN-8183720773**
2. P.K. Bajpai, **Shiv P. Patel**, T. Trivedi, C. Malli *et al.* “*Ion beams and material science facilities using high current low energy 3.0 MV particle Accelerator at NCAR, Bilaspur*”, **Proceedings of Indian Particle Accelerator (InPAC) ID-137 (2015) 362-365.**
3. Jaidev Dewangan, T Trivedi, **S. P. Patel**, C Mallik *et al.* “*PLC based control system and maintenance activities of 3.0 MV Pelletron accelerator at NCAR, Bilaspur*”, **Proceedings of Indian Particle Accelerator (InPAC) ID-308 (2015) 792-794.**
4. S.K Gupta, T. Trivedi, **Shiv Patel**, C Mallik *et al.* “*Safety aspects implemented in 3.0 MV Pelletron Accelerator at NCAR, GGV, Bilaspur*”, **Proceedings of Indian Particle Accelerator (InPAC) ID-309 (2015) 795-798.**
5. P. K. Bajpai, T. Trivedi, **S. P. Patel**, C. Mallik and L. Chaturvedi, “*Status of 3.0 MV Pelletron Accelerator at National Centre for Accelerator based Research at GGV, Bilaspur*”, **DAE-BRNS Symp. Nucl. Phys. 59 (2014) 996-997.**
6. P. K. Bajpai, T. Trivedi, **Shiv. P. Patel**, C. Mallik and L.Chaturvedi “*National Centre for Accelerator based Research at GGV Bilaspur: Emerging facility for Neutron Generation*”. **DAE-BRNS Symp. Nucl. Phys. 58 (2013) 962-963. ISBN-8183720706**
7. P. K. Bajpai, C. Mallik, Tarkeshwar Trivedi, **Shiv Poojan Patel**, Madhvendra Tripathi, Ajay Gupta, T.G.Reddy, S.K. Srivastava, Pradeep Das, R.P. Prajapati and Lakshman Chaturvedi “*Research activities and programs at the National Centre for Accelerator based Research: An upcoming 3 MV Pelletron Facility*”. **Proceedings of Indian Particle Accelerator (InPAC) ID-301 (2013) 702-704.**
8. L. Kumar, Monika mall, **Shiv P. Patel**, D. Kabiraj and D. K. Awasthi “*Optical characterization of ZnS nanocrystals embedded in SiO₂ matrix by atom beam co-sputtering*”. **Proceedings of Emerging Trends in Laser & Spectroscopy and Application (2009) 448-450. ISBN:- 9788184246261**
9. **S. P. Patel**, Numan Salah, A.Tripathi, S.P.Lochab, F.Singh, D.Kanjilal, Lokendra Kumar “*Synthesis and Characterization of Cu doped ZnS nanoparticles*”. **DAE-Solid State Physics 52 (2007) 379-380. ISBN 81-8372-035-8**

Invited/Resource person in Conferences/Seminars/Workshops

1. **Shiv P. Patel**, “*Low temperature development of crystalline-Si and-Ge via ion irradiation process for solar energy material applications*” 2nd National Conference on Advanced Materials and Applications (NCAMA). **December 28-29, 2020**, Department of Physics, National Institute of Technology (NIT), Raipur, India. **Invited Talk**
2. **Shiv P. Patel**, “*Crystallization of Elemental Semiconductors via Swift Heavy Ion Irradiation for Solar Energy Material Applications*” International e-Conference on Advanced Functional Materials and Optoelectronics Materials. **June 13-15, 2020**, Prof. Rajendra Singh (Rajju

Bhaiya) Institute of Physical Sciences for Study & Research, Veer Bahadur Singh Purvanchal University, Jaunpur, India. **Plenary Talk**

3. **Shiv P. Patel**, “*Charge Particle Accelerator and their Applications in Material Research*” Lecture Series on Recent Advances in Science & Technology. **20 April - 03 May 2020**, Prof. Rajendra Singh (Rajju Bhaiya) Institute of Physical Sciences for Study & Research, Veer Bahadur Singh Purvanchal University, Jaunpur, India. **Key Note Speaker**
4. **Shiv P. Patel**, “*Metal Induced Crystallization of amorphous semiconductor under swift heavy ion irradiation*” National Seminar on Advanced Materials for Sustainable Industrial and Social Applications. **17-18 January 2020**, Govt. Pt. Shyamacharan Shukla College, Dharsiwa, Raipur, Chhattisgarh, India. **Invited Talk**
5. **Shiv P. Patel**, “*Materials Engineering by Ion Beam*” National Conference on Recent Advances in Physical Sciences. **18-19 November 2019**, Govt. Kamladevi Rathi Girls P.G. College, Rajnandgaon, Chhattisgarh, India. **Invited Talk**
6. **Shiv P. Patel**, “*Materials Characterizations using Ion Beam Analysis Techniques*” Two Days National Workshop on Advances in Basic Science and Technology. **04-05 November 2019**, School of Science, OP Jindal University, Raigarh, Chhattisgarh, India. **Invited Talk**
7. **Shiv P. Patel**, “*Ion Beam Analysis Measurement Techniques for Materials Characterizations*” Two days Skill Development Workshop. **12-13 March 2019**, School of Physical Science, Guru Ghasidas Vishwavidyalaya, Bilaspur. **Invited Talk**
8. **Shiv P. Patel**, T. Basu, M. Kumar, P. Mishra, R. P. Yadav, and T. Som, “*Growth and Properties of Glancing Angle deposited Co thin films on Ion Eroded Rippled Surfaces*” at XX National Seminar on Ferroelectrics and Dielectric (XX NSFD 2018) **14-16 December 2018**, Department of Pure and Applied Physics, GGV, Bilaspur. **Invited Talk**
9. **Shiv P. Patel**, P.K. Bajpai, T. Trivedi, C. Mallik. “*Materials Modifications and Characterization using low energy ion Accelerator*”. 18th International Conference of International Academy of Physical sciences on Recent Trends in Physical Sciences. **December 22-24, 2015**. Faculty of Sciences, University of Allahabad, Allahabad. **Invited Talk**

Paper as an Oral/Poster Presentation

1. **Shiv P. Patel**. Aluminum Induced Crystallization of *a*-Si via Thermal Annealing and Swift Heavy Ion Irradiation Processes **08-11 December, 2020**. IUAC, New Delhi. **Oral talk**
2. **Shiv P. Patel**, Tanmoy Basu, Mohit Kumar, Pramita Mishra, and T. Som. “*Tailoring Magnetization of Co Thin films on Nano Rippled-Si Substrate*”. National Seminar on Applications of Nano and Smart Materials. **23-24 February, 2018**. Department of Physics, Sambhalpur University, Sambhalpur. **Oral talk**
3. **Shiv P. Patel**, “*Nanostructuring of Materials using Energetic Ions: An Indian Aspect*”. International conference on Bharat Rejuvenation (ICBR-2017). **15-17 October, 2017**. Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.), India. **Oral talk**
4. **Shiv P. Patel**, T. Basu, M. Kumar, P. Mishra, and T. Som. “*Glancing Angle Deposition of Co Thin films on Rippled-Si Substrate: An Advanced Functional Material*”. International Conference on Emerging Materials & Applications (ICEMA-2017). **20-22 February, 2017**.

Physics Department, University of Allahabad, Allahabad. **Oral Talk**

5. **Shiv P. Patel**, C. Pivin, Ramesh Chndra, Lokendra Kumar, and D. Kanjilal. “*Ferromagnetic Co Doped ZnS Thin Films with Wurtzite Structures*”. International Conference on New Scintillations on Materials Horizon (ICNSMH-2016). **21-23 October, 2016**. Department of Applied Physics, Mahatma Jyotiba Phule Rohilkhand University, Bareilly. **Oral Talk**
6. **Shiv P. Patel**, T. Trivedi, R.K. Ambros, R.K. Pandey, Bindu Saho, Ranjit Dey, Pushpita Chandra and P.K. Bajpai. “*Materials Science Experiments using Low Energy Accelerator at NCAR, Bilaspur*”. International conference on Ion Beam in Materials Engineering and Characterizations (IBMEC 2016). **September 28 - October 01, 2016**. Inter-University Accelerator Centre (IUAC), New Delhi, INDIA. **Oral Talk**
7. Rakesh Singh, **Shiv P. Patel**, T. Trivedi, C. Mallik, P.K. Bajpai, “*3.0 MV Pelletron Accelerator Ion Implanter as an Important Research Tool for Materials Modifications*”. National Workshop Advances in Synthesis and Characterization of Materials for Technological Applications, 30 March, 2015, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.), India. **Poster Presentation**
8. **Shiv P. Patel**. Two Days National Workshop on Particle Accelerator for Interdisciplinary Research: 18-19 February, 2014, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.), India. **Oral Talk**
9. **Shiv P. Patel**, and P. K. Bajpai, “*Luminescence and structural studies of energetic ion irradiated SrTiO₃ Single Crystal*”. Two Days National Workshop cum Theme Meeting on Ion Beam Induced Material Modifications & Neutron Generation using 3 MV Particle Accelerator: Applications in Physical, Chemical and Life Sciences: 19-20 August, 2013, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur-495009 (C.G.), India. **Oral Talk**
10. **Shiv P. Patel**, J.C. Pivin, Ramesh Chandra, D. Kanjilal and, Lokendra Kumar. “*Swift Heavy Ion Induced Magnetic Transition in Co Doped ZnS Thin Films*”. Conference on Nanostructuring by Ion Beam (NIB-2011): **16-19 October, 2011**. University of Allahabad, Allahabad, India. **Oral Talk**
11. **Shiv P. Patel**, S.A. Khan, J.C. Pivin, Ramesh Chandra, D. Kanjilal, and Lokendra Kumar. “*ERDA studies to understand the structural phase transformation of thin films of ZnS nanocrystals by swift heavy ion irradiation*”. Conference on Swift Heavy Ions in Materials Engineering and Characterization (SHIMEC-2010): **6-9 October 2010**, IUAC, New Delhi, India. **Oral Talk**
12. **Shiv P. Patel**, L. Kumar, Jai Prakash, S. Srivastava, A. Tripathi, V.V. Siva Kumar, P. K. Kulariya, I. Sulania, Y.K. Vijay, and D. Kanjilal. “*Formation of ZnS nanoring structures in SiO₂ thin film by 100 MeV Ni⁺⁷ ion beam irradiation*”. International Conference on Ion beam analyses (IBA-2009), Cambridge, U.K, (September-2009). **Poster Presentation**
13. **Shiv P Patel**, Lokendra Kumar, A. Tripathi, V.V. Sivakumar, P. K. Kulriya, I. Sulania, and D. Kanjilal “*Nanoring formation by ion irradiation and thermal annealing: A comparative study*”. Joint ICTP/IAEA advanced workshop on development of radiation resistant materials at Trieste, Italy (April-2009). **Poster Presentation**.

14. **Shiv P. Patel**, Lokendra Kumar, A. Tripathi, Y. S. Katharri, V.V. Sivakumar, I. Sulania, P. K. Kulariya, and D. Kanjilal. International Conference on *Transport and Optical Properties of Nanomaterials (ICTOPON-2009)*: **5-9 January 2009**. University of Allahabad, Allahabad, India. **Oral Talk**
15. **Shiv P. Patel**, Numan Salah, A.Tripathi, S.P.Lochab, F.Singh, D.Kanjilal, Lokendra Kumar “*Synthesis and Characterization of Cu doped ZnS nanoparticles*”. DAE-SSPS at Mysore (December-2007). **Poster Presentation**
16. **S. P. Patel**, A. Tripathi, L. Kumar, D. Kanjilal, “*Synthesis of doped II-VI Binary Compound Semiconductor*”. Workshop on Material Science and Atomic/Molecular Physics Experiment using the Low Energy Ion Beam Facility: **22-22 February 2007**, IUAC, New Delhi, India. **Oral Talk**

Conferences/Workshops/Schools Attended

1. *Indo-Japan School on Advanced Accelerator for ions and electron*. **February 16-18, 2015**. Inter-University Accelerator Centre (IUAC), New Delhi, INDIA.
2. *Awareness Workshop on the Facilities of UGC-DAE Consortium for Scientific Research*: 23-24 March 2012, Department of Physics, Utkal University, Bhubaneswar, India.
3. Joint ICTP/IAEA Advanced Workshop on *Development of Radiation Resistant Materials*: 20-24 April 2009, The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy.
4. Joint ICTP/IAEA Workshop on *Advanced Simulation and Modeling for Ion Beam Analysis*: 23-27 February 2009, The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy.
5. *School on Optical Characterization*: 30th June-2nd July 2008, IUAC, New Delhi, India.
6. Seminar cum Workshop on *Material characterization and modification of surface in research and industry by using ion accelerators (MCIA)*: 31st March-4th April 2008, Institute of Physics (IOP), Bhubaneswar, India.
7. Workshop on *Material Science with swift heavy ions*: 17th Sept-18th Sept 2007, IUAC, New Delhi, India.

Skill Development/Orientation/Refresher Courses Attended:

1. Refresher course on “Nanoscience & Nanotechnology and Its Applications” UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 15-02-2021 to 27-02-2021.
2. Refresher course on “Instrumentation and Experimental Techniques in Physical Sciences” UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 09-12-2019 to 21-12-2019.
3. Interdisciplinary Refresher Course on “Refresher Course on Research Methodology for Interdisciplinary Research” UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 13-01-2016 to 02-07-2016.
4. 15th Orientation Programme, UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) from 15-06-2015 to 12-07-2015.

Conferences/Workshops Organized

2. **Treasures**, XX National Seminar on Ferroelectrics and Dielectric (XX NSFD 2018) **14-16 December 2018**, Department of Pure and Applied Physics, GGV, Bilaspur.
3. **Organizing Secretary** “Two Days National Workshop on Particle Accelerator for Interdisciplinary Research”. **February 18-19, 2014**. Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur-495 009 (C.G.), INDIA.
4. **Organizing Secretary** “Two Days National Workshop cum Theme Meeting on Ion Beam Induced Material Modifications & Neutron Generation using 3 MV Particle Accelerator: Applications in Physical, Chemical and Life Sciences”. **August 19-20, 2013**. Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur-495 009 (C.G.), INDIA.
5. **Organizing Secretary** “One Day Acquaintance Program of IUAC, New Delhi”. **July 19 2013**. Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya, Bilaspur-495 009 (C.G.), INDIA.

Visits of Foreign Laboratories

1. The Abdus Salam Center for Theoretical Physics (ICTP), Italy
February, 2009
April, 2009
2. ELETTRA Synchrotron Light Source, Trieste, Italy. April, 2009

Research Guidance

Ph.D. Research Guidance: 01

- **Mr. Gurupada Maity**: Thesis Title- “Ion Beam Assisted and Thermally Mediated Crystallization of Amorphous Semiconductors”. **Thesis Submitted**

M.Sc. Project/Dissertation Guidance: 19

Year	Student Name	Title of the Project
2014	Mr. Suvendu Maity	Synthesis and Characterization of BaTiO ₃ Thin Films
	Mr. Mrinmoy Biswas	Synthesis and Characterization of ZnS Thin Films
2015	Mr. Pranab Sau	Energy Loss Studies of Energetic Ions in Materials Using SRIM & TRIM Simulation
	Mr. Susovan Panja	Rutherford Backscattering Spectrometry of Thin Films

	Mr. Sougata Chatterjee	Theory of PIXE and the Analysis of ZnO Thin Film
2016	Ms. Himani Pahare	Synthesis and Characterization of Cobalt Doped Bismuth Calcium Ferrite prepared by Solid State Reaction Method
	Mr. Sukhendu Chakraborty	Synthesis and Characterization of Nickel Doped Bismuth Calcium Ferrite prepared by Solid State Reaction Method
2017	Ms. Pinki Kumari	Synthesis and Structural Characterization Barium doped Bismuth Ferrite by Combustion Method
	Mr. Anil Kumar	Synthesis and Structural Characterization Strontium doped Bismuth Ferrite by Solid State Reaction Method
	MR. Brajesh Sahu	Synthesis and Structural Characterization Barium doped Bismuth Ferrite by Solid State Reaction Method
2018	Ms. Satarupa Das	Studies on Structural Properties of $\text{Bi}_{1-x}\text{Ba}_x\text{FeO}_3$ Multiferroics by combustion method
	Mr. Karan Pandey	Synthesis and Structural Properties of Sr doped BiFeO_3
	Mr. Sukant Jaiswal	Synthesis and Structural Properties of $\text{Bi}_{1-x}\text{Ba}_x\text{FeO}_3$ Multiferroics
2019	Ms. Rekha Jaltare	Synthesis and Structural Properties of Ti doped BiFeO_3
	Ms. Rinki Padhan	Synthesis and Characterization of Calcium doped Bismuth Ferrite ($\text{Bi}_{1-x}\text{Ca}_x\text{FeO}_3$)
	Ms. Yamuna Patel	Synthesis and Characterization of Lanthanum Doped Bismuth Ferrite (BFO)
	Ms. Pooja Tandon	Synthesis and Structural Characterization of Mn Doped Bismuth Ferrite
2020	Preeti Ranjan Padihari	Thermoelectric properties of Doped SnTe
	Virendra Kumar	Thermoelectric properties of Doped SnSe