

Curriculum vitae

Rajesh Kumar

Personal Details

Address: Professor and Head, Department of Physics and Astronomical Science, Central University of Himachal Pradesh (CUHP), Shahpur Campus, Kangra, Himachal Pradesh, India. Pin-176206

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Citizenship: India

Professional Qualifications

M.Sc. C.C.S.Uni. Meerut

M.Tech. Indian Institute of Technology Roorkee (IIT Roorkee)

Ph.D. H.P. Uni. Shimla

Post-Doc. Gwangju Institute of Science and Technology (GIST), South Korea

Employment History

Rajesh Kumar is currently working as Professor and Head in the Department of Physics and Astronomical Sciences. He obtained M.Tech. from IIT Roorkee, and Ph.D. in Physics (Nanotechnology) from H.P. University, Shimla (India). He joined Jaypee University of Information Technology in 2004, and worked there till March 2022. During August 2007- September 2008, he has worked as a researcher at the Center for Superfunctional Materials (CSM), Pohang University of Science and Technology (POSTECH), South Korea. He is visiting Professor at GIST, South Korea, and has been a Visiting Scientist at Kyushu University, Japan (on a DST-JSPS sponsored collaborative project), and University of Osnabruck, Germany (on a DST-DAAD sponsored collaborative project). His current research topics include synthesis, characterization and application of Nanostructures, fabrication of transition metal Nanostructures on silicon substrates, Magnetic thin films for Spintronic Device Application, Super-Resolution Optical Microscopy, Nanostructures analysis using High Resolution Microscopies, Supercapacitor Electrode Materials.

Personal Distinctions

Expertise:

- High Resolution Scanning Electron Microscopy (HRSEM) installed with EDX.
- Field Emission Scanning Electron Microscopy (FESEM).
- High Resolution Transmissions Electron Microscopy (HRTEM) and Scanning Tunneling microscopy (STEM) (JEOL 2100).
- Atomic Force Microscopy (AFM) (Dimension 3000).
- Sampling for the TEM measurements.

- Magnetic Force Measurement (MFM).
- Magnetic Property Measure System (MPMS).

Collaborative Research:

- INFONET, Laboratory, GIST, South Korea
- Department of Physics, Osnabruck University, Osnabruck, Germany
- Solid State Physics Laboratory, Kyushu University, Japan
- Department of Materials and Optoelectronic Science, National Sun Yat-sen University, Taiwan

MoU:

- SINTEF Industry Norway (in the field of renewable energy), 2017-2019

Research Visits:

- June 2019 (28 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- November 2018 (15 days) Visiting Scientist, Osnabruck University, Osnabruck Germany
- June-July 2018 (21 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- September 2017 (12 days) Visiting Scientist, Osnabruck University, Osnabruck, Germany
- July 2016-June 2017 (1 year) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- June-July 2015 (24 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- June 2015 (10 days) Visiting Scientist, Kyushu University, Japan
- January 2015 (14 days) Visiting Scientist, Kyushu University, Japan
- December 2014 (15 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- June: 2014 (25 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- December 2013 (20 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- June: 2013 (25 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- March 2013 (10 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- November 2012 (22 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- September 2012 (12 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- June 2012 (25 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- March 2012 (12 days) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- December 2011 (1 month) Visiting Professor, Gwangju Institute of Sci. & Tech. (GIST), South Korea
- July 2009 to September 2009 (2 Moths), Researcher, Pohang University of Science and Technology (POSTECH), South Korea
- August 2007- September 2008 (1 Year) Researcher, Pohang University of Science and Technology (POSTECH), South Korea

Visitors from Abroad:

- Prof. Joachim Wollschläger & Tobias Pohlmann (Ph.D Student), University of Osnabruck, Germany (October 8-18, 2018).
- Prof. Joachim Wollschläger & Tobias Pohlmann (Ph.D Student), University of Osnabruck, Germany (December 4-15, 2017).

- Prof. Kimura Takashi & Dr. Kohei Ohnishi, Kyushu University, Japan (March 21-28, 2015).
- Prof. Yamada Kazumasa & Dr. Kohei Ohnishi, Kyushu University, Japan (September 8-15, 2014).
- DST sponsored project (completed/ongoing);
 - Completed International Project; DST-JSPS (Indo- Japan).
 - Completed National Project; DST (Fast Track).
 - Ongoing International Project; DST-DAAD (Indo-German)

Other Information:

- Highest Impact factor Paper (**Impact factor 29.19**).
- Two publications in **Nature Publishing Group's Journal (Scientific Reports)**.
- Designed a thin film deposition setup for the formation of magnetic and non-magnetic thin films for spin application using in plane and out of plane magnetic fields. This setup is unique and is capable to form magnetically anisotropic thin films. This setup is designed with the collaboration (individual) of a German Professor (Prof. Joachim, University of Osnabruck, Germany)

Invited Seminars and Invited Conference Presentations (last 5 years)

- Invited Talk in a workshop on "Recent Trends in Nano-Science and Nanotechnology (RTNN-2022)", Himachal Pradesh Technical University (HPTU), Hamirpur, 11th March, 2022.
 - Expert Lecture in One Week STC on 'Nanomaterials and their Green Applications' National Institute of Technical Teachers' Training & Research (NITTTR), Chandigarh, 29th March, 2022.
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Professional Contributions (last 5 years)

- Member, MRSI, IJMS

Teaching

Teaching Experience in JUIT : 18 + years

Nanoscience and Nanotechnology, Materials Science, Optics, Electromagnetic Theory
Characterizations Techniques for Nanomaterials

Doctoral Thesis Supervision

Five PhD students supervised and two are being co-supervised

- Pawan Kumar, Synthesis and characterization of nanostructured iron oxide thin films: structural, magnetic and optical properties (2014).
- Richa Khokhra, Synthesis, characterization and application of ZnO nanostructures (2014).
- Sarita, Synthesis of magnetite nanoparticles on substrates for water purification (2016).
- Bandna Bharti, Surface modification of titanium dioxide (TiO₂) thin films and their applications (2017).
- Kanchan Kumari, Fabrication of Cobalt Ferrite and Nickel ferrite thin films for spin based applications

(2020).

University Administration

- Coordinator: International Collaboration Center, Jaypee University of Information Technology, Waknaghat, (H.P.)-171219(2021-2022)
- Head, Department of Physics and Astronomical Sciences, Central University of Himachal Pradesh, Shahapur (H.P.)-176215 (March 2022- till date)

Research Projects and Income

Year	Source of funds	Project title	Amount
2012-2015	DST	Synthesis of magnetic nanoparticles on substrate for water purification	Rs. 11.80 Lacs
2014-2016	DST-JSPS (Indo-Japan), Int. Collaborative Project	Development of spin-based semiconductor nano-electronic device using ferromagnetic silicon rods	Rs. 7.20 Lacs
2017-2019	DST-DAAD (Indo-German), Int. Collaborative Project	Formation of room temperature Ferrite thin films for the application of Spintronic devices	Rs. 11.72 Lacs

Publications

Journal

1. Raj Kumar, **Rajesh Kumar**. Evolution of a facile and novel general strategy for fabricating single and mixed 3d-block transition metal hydroxide/oxide films for innumerable applications. **Materials Chemistry and Physics**, Volume 266, 124534, (2021).
2. Kanchan Kumari, **Rajesh Kumar**, and Partha Bir Barman, "Influence of applied magnetic field and heating on properties of Cobalt ferrite films", **Journal of Materials Science: Material in electronics**, 32, 5594-560, (2021).
3. Kanchan Kumari, **Rajesh Kumar**, and Partha Bir Barman, "Tuning of structural, magnetic and optical properties of NiFe₂O₄ films by implementing high magnetic fields", **Thin Solid Films**, 712, 138321712, 138321, (2020).
4. Kanchan Kumari, **Rajesh Kumar**, Partha Bir Barman. Magnetic field and temperature-dependent studies of structural and magnetic properties of NiFe₂O₄ films. **Applied Physics A**, 126 (456), (2020)
5. Richa Khokhra, Bandna Bharti, Heung-No Lee, **Rajesh Kumar**. Visible and UV photo-detection in ZnO nanostructured thin films via simple tuning of solution method. **Scientific Reports (Nature Publishing group)**, 7 (15032), (2017)
6. Bandna Bharti, Santosh Kumar, Heung-No Lee, **Rajesh Kumar**. Formation of oxygen vacancies and Ti³⁺ state in TiO₂ thin film and enhanced optical properties by air plasma treatment. **Scientific Reports (Nature Publishing group)**, 6 (32355), (2016)
7. Bandna Bharti, Santosh Kumar, **Rajesh Kumar**. Superhydrophilic TiO₂ Thin Film by Nanometer Scale Surface Roughness and Dangling Bonds. **Applied Surface Science**, 364, 51-60, (2016).
8. Sarita Kango, **Rajesh Kumar**. Magnetite nanoparticles coated sand for arsenic removal from drinking water. **Environmental Earth Sciences**, 75 (381), (2016)

9. Sarita Kango, **Rajesh Kumar**. Low-Cost Magnetic Adsorbent for As(III) Removal from Water: adsorption kinetics and isotherms. *Environmental Monitoring and Assessment*, 188(60), 59-60, (2015)
10. Pawan Kumar, **Rajesh Kumar**, Heung No Lee. Magnetic Field Induced One-Dimensional Nano-Micro Structures Growth on the Surface of Iron Oxide Thin Film. *Thin Solid Films*, 592 Part A, 155-161, (2015)
11. Pawan Kumar, Nitin Rawat, Da-Ren Hang, Heung-No Lee, **Rajesh Kumar**. Controlling Band Gap and Refractive Index in Dopant-Free α -Fe₂O₃ Films. *Electronic Materials Letters*, 11(1), 13-23, (2015).
12. Richa Khokhra, Raj Kumar Singh, **Rajesh Kumar**. Effect of synthesis medium on aggregation tendencies of ZnO nanosheets and their superior photocatalytic performance. *Journal of Materials Science (Springer)*, 50, 819–832, (2015)
13. Pawan Kumar, Heung No-Lee, **Rajesh Kumar**. Synthesis of phase pure iron oxide polymorphs thin films and their enhanced magnetic properties. *Journal of Materials Science: Materials in Electronics*, 25 (10), 4553-4561, (2014).
14. Susheel Kalia, Sarita Kango, Amit Kumar, YuvarajHaldorai, Bandna Kumari, **Rajesh Kumar**. Magnetic polymer nanocomposites for environmental and biomedical applications. *Colloid and Polymer Science*, 292 (9), 2025-2052, (2014).
15. Richa Khokhra, Nitin Rawat, Hwanchol Jang, Partha Bir Barman, **Rajesh Kumar**, Heung-No Lee. Enhancing Numerical Aperture of a Lens using Turbid media for Turbid Lens Imaging. *Journal of Optics*, 15 (12), 125714, (2013)
16. Sarita Kango, Susheel Kalia, Annamaria Celli, James Njuguna, Youssef Habibi, **Rajesh Kumar**. Surface modification of inorganic nanoparticles for development of organic-inorganic nanocomposites - A review. *Progress in Polymer Science*, 38 (8), 1232-1261, (2013).
17. Pawan Kumar, Subhash Chander Katyal, Sunil Kumar Khah, Nitin Rawat, **Rajesh Kumar**(Magnetic thin film formation on the surface of solution induced via island growth of nanoparticles. *Advanced Materials Letters*, 4 (1), 74-77, 2013).
18. Patial B.S., Neha, Prakash J., **Rajesh Kumar**, Tripathi S.K., Thakur N. Dielectric properties and AC conductivity measurements of amorphous Ge₁₅Se₈₅ glass. *Journal of Nano and Electronic Physics*, 5 (2), 2013)
19. Pawan Kumar, Raj Kumar Singh, Nitin Rawat, Partha Bir Barman, Subhash Chander Katyal, Hwanchol Jang, Heung-No Lee, **Rajesh Kumar**. A novel method for controlled synthesis of nanosized hematite (α -Fe₂O₃) thin film on liquid-vapor interface. *Journal of Nanoparticle Research*, 15 (4), -1532, 2013)
20. Hemant Pala, Vimal Sharma, **Rajesh Kumar**, Nagesh Thakur. Facile Synthesis and Electrical Conductivity of Carbon Nanotube Reinforced Nanosilver Composite. *Zeitschrift fur Naturforschung - Section A: A Journal of Physical Sciences*, 67a (), 679-684, (2012)
21. Pawan Kumar, Sunil Kumar Khah, **Rajesh Kumar**. Synthesis of magnetic thin films on glass substrates using NH₃ vapor. *Material Science Forum*, 710, 762-767, (2012)
22. R.S. Bisht, **Rajesh Kumar**, N. Thakur. Change in surface free energy and surface resistivity of polycarbonate and polypropylene sheets after plasma exposure. *Optoelectronics and Advanced Materials, Rapid Communications*, 4 (2), 144-147, (2010)
23. **Rajesh Kumar**, Nagesh Thakur. Formation and characterization of SiO₂ nanowire groups on Si substrate by SLS mechanism. *Optoelectronics and Advanced Materials, Rapid Communications*, 3 (4), 343-346, (2009)

24. **Rajesh Kumar**, S. Gautam, In-Chul Hwang, Jae Rhung Lee, K.H. Chae, Nagesh Thakur. Preparation and characterization of α -Fe₂O₃ polyhedral nanocrystals via annealing technique. *Materials Letters*, 63, 1047, (2009)
25. **Rajesh Kumar**, In-Chul Hwang, Nagesh Thakur. Carbon nanotube growth at the tip of SiO₂ nanocone. *Material Science and Engineering: C*, 29 (8), 2384-2387, (2009)
26. In-Chul Hwang, **Rajesh Kumar**, Nam Dong Kim, Young Chun, JungWoo Lee, Pavan Kumar Rudra S Mana, Changhoon Choi, Jae Rhung Lee, Kwang S Kim. Controlling Metal Nano-toppings on the tip of Silicide Nanostructures. *Nanotechnology*, 20 (24), (2009)
27. **Rajesh Kumar**, Vineet Sharma, Sharma D., Thakur N. An insight into the mechanism of ordered holes formation in porous alumina template. *Optoelectronics and Advanced Materials, Rapid Communications*, 3 (3), 190-194, (2009)
28. S. Karthikeyan, Jiten N. Singh, Mina Park, **Rajesh Kumar**, Kwang S. Kim. Structures, energetics, vibrational spectra of NH₄ (H₂O)_{n=4,6} clusters: Ab initio calculations and first principles molecular dynamics simulations. *Journal of Chemical Physics*, 128 (), 244304, (2008)
29. **Rajesh Kumar**. Comparative study of surface free energy and surface resistivity of polypropylene and polystyrene thin films after DC plasma treatment. *Polimery/Polymers*, 52 (5), 336-339, (2007)
30. **Rajesh Kumar**, Raj Kumar Singh, Manoj Kumar, Sudhir Kumar Barthwal. Effect of DC Glow Discharge Treatment on the Surface Energy and Surface Resistivity of Thin Film of Polypropylene. *Journal of Applied Polymer Science*, 104 (2), 767-772, (2006)

Book Chapters

1. Richa Khokhra, **Rajesh Kumar**. Sunlight Photocatalytic Activity of Transition Metal-Doped ZnO Interwoven Nanosheets for Degradation of Methylene Blue. in, *Nanotechnology: Novel Perspectives and Prospects*. Tata-McGraw Hill. (2015)[ISBN: 9789339221096]
2. Sarita Kango, **Rajesh Kumar** (2015). Efficient removal of arsenic (III) from drinking water by Fe₃O₄ nanoparticles coated sand: Time dependent removal study. in, *Nanotechnology: Novel Perspectives and Prospects*. Tata-McGraw Hill. (2015)[ISBN: 978-93-392-2109-6]
3. BandnaBhartia, **Rajesh Kumar**, Hitanshu Kumar, Hanliang Li, XiaoxiongZhaand Feng Ouyang. Advanced applications and current status of green nanotechnology in the environmental industry. In *Green Functionalized Nanomaterials for Environmental Applications*, Elsevier. (2021) [<https://doi.org/10.1016/B978-0-12-823137-1.00012-9>]

Conference(s)

1. Raj Kumar, **Rajesh Kumar** (2020). Formation of hierarchical porous interlaced 3-D nanostructured (Ni-Co)(OH)₂ and NiCo₂O₄ films simultaneously using a novel technique. *Proceedings of the International Conference on Advanced Materials and Nanotechnology (AMN-2020) Materials Today Proceedings* [Noida, India: 20-22 February, 2020]
2. Bandna Bharti, **Rajesh Kumar** (2016). Formation of Surface Groups to Enhance the Wettability of Titanium dioxide (TiO₂) Thin Films. *Proceedings of the International Conference on Advances in Nanomaterials and Nanotechnology (ICANN-2016)* [New Delhi, India: 4 - 5 November, 2016],
3. Bandna Bharti, Partha Bir Barman, **Rajesh Kumar** (2015). XRD analysis of undoped and Fe doped TiO₂ nanoparticles by Williamson Hall method. *Proceedings of the National Conference on Advanced Materials and Radiation Physics* [4th: Longowal, India: 13-14 March 2015], pp.0300251-0300254.

4. Sarita Kango, **Rajesh Kumar** (2015). Magnetite nanoparticles coated glass wool for As(V) removal from drinking water. *Proceedings of the National Conference on Advanced Materials and Radiation Physics* [4th: Longowal, India: 13-14 March 2015], pp.0300241-0300244.
5. Richa Kokhra, **Rajesh Kumar** (2014). Effect of Fe Doping Concentration on Photocatalytic Activity of ZnO Nanosheets Under Natural Sunlight. *Proceedings of the International Conference on Condensed Matter Physics* [Shimla, India: 4-6 November 2014]
6. Sarita Kango, **Rajesh Kumar** (2014). Efficient Removal of Arsenic (III) From Drinking Water By Fe₃O₄ Nanoparticle Coated Sand: Time Dependent Removal Study. *Proceedings of the International Conference on Nanotechnology in the service of health, environment & society (NanoSciTech 2014)* [Punjab University, Chandigarh, India: February 13-15, 2014]
7. Richa Khokhra, **Rajesh Kumar** (2014). Sunlight Photocatalytic Activity of Transition Metal-Doped ZnO Interwoven Nanosheets for Degradation of Methylene Blue. *Proceedings of the International Conference on Nanotechnology in the service of health, environment & society (NanoSciTech 2014)* [Punjab University, Chandigarh, India: February 13-15, 2014]
8. Richa Khokhra, **Rajesh Kumar** (2013). Magnetic properties of Fe doped ZnO nanosheets fabricated on glass wafer by chemical method. *Proceedings of the International Union of Materials Research Society- International Conference in Asia (IUMRS-ICA) 2013* [Banglore, India: December 16-20, 2013], pp.-.
9. Richa Khokhra, Partha Bir Barman, **Rajesh Kumar** (2013). Synthesis of ZnO Nanostructures on Silicon Wafer by Wet Chemical Method. *Proceedings of the National Conference on Advanced Materials and Radiation Physics (AMRP-2013)* [SLIET, Longowal (Punjab) India: November 22-23, 2013], pp.-.
10. Pawan Kumar, Sk. Emdadul Islam, **Rajesh Kumar** (2013). Structural and optical properties of α -Fe₂O₃ film prepared by chemical method. *Proceedings of the International Conference on Recent Trends in Applied Physics and Material Science (RAM 2013)* [Bikaner, Rajasthan, India: 1-2 February, 2013], pp.1019-1020.
11. Vimal Sharma, Hemant Pal, **Rajesh Kumar**, Nagesh Thakur (2013). Effect of Sintering on Electrical Conductivity of Silver-MWCNT Nanocomposite. *Proceedings of the National Conference on Multifunctional Advanced Materials (MAM 2013)* [Shoolini University, Solan, HP: 2-4 May, 2013], pp.7-12.
12. Swati Gupta, Sarita Kango, **Rajesh Kumar** (2013). Study of Wet Chemical Deposited Magnetite Thin Film on Si Substrate: Synthesis and Morphology Studies. *Proceedings of the National Conference on Multifunctional Advanced Materials (MAM 2013)* [Shoolini University, Solan, HP: 2-4 May, 2013], pp.39-41.
13. Richa Khokhra, **Rajesh Kumar** (2013). Effect of KOH concentration on morphology of ZnO nanostructures. *Proceedings of the National Conference on Multifunctional Advanced Materials (MAM 2013)* [Shoolini University, Solan, HP: 2-4 May, 2013], pp.33-35.
14. Pawan Kumar, **Rajesh Kumar** (2013). Effect of Lanthanum Doping on the Optical Properties of Hematite (α -Fe₂O₃) Thin Film. *Proceedings of the National Conference on Multifunctional Advanced Materials (MAM 2013)* [Shoolini University, Solan, HP: 2-4 May, 2013], pp.36-38.
15. SkEmdadul Islam, Pawan kumar, **Rajesh Kumar** (2013). Structural Study Of α -Fe₂O₃ Attached MWCNT Thin Film Prepared by Simple Chemical Method. *Proceedings of the National Conference on Multifunctional Advanced Materials (MAM 2013)* [Shoolini University, Solan, HP: 2-4 May, 2013], pp.30-32.
16. Pawan Kumar, **Rajesh Kumar**, S.C. Katyal, Sunil Kumar Khah (2011). Coating of magnetite nanoparticles on sand particles by chemical co-precipitation method. *Proceedings of the National Conference on Recent Trends in Materials Science* [October 08-10, 2011.],

17. **Rajesh Kumar**, Pawan Kumar, Nagesh Thakur (2010). A review of Nanotechnology and a brief description of synthesized nanoparticles. *Proceedings of the National Scientific and Technical Seminar* [TBRL (DRDO lab) Chandigarh, India: December 7-8, 2010.],
18. **Rajesh Kumar**, In-Chul Hwang, Nagesh Thakur (2009). MnO controlled growth of SiO₂ nanocones, and straight SiO₂ nanowires with single crystalline metallic Ni nanosphere at tip. *Proceedings of the International Conference on Multifunctional Oxide Materials* [HPU, Shimla, India. : April 16-18, 2009.],

Abstract/ Poster Presentations/ Invited Lectures in Conferences

1. Kanchan Kumari, **Rajesh Kumar**, Partha Bir Barman (2018). One Step Formation of ZnO Thin Films on the Surface of Precursor Solution using Ammonia Vapors in Simple Liquid-Vapor Method *Proceedings of the Himachal Pradesh Science Congress* [3rd: IIT Mandi: 22-23 October, 2018]
2. Sarita Kango, **Rajesh Kumar** (2015). Kinetics study of As(III) removal from drinking water by magnetic adsorbent coated on glass wool. *Proceedings of the International Convention of Engineering and Management* [2nd: Solan, India: April 4-5, 2015]
3. Sarita Kango, **Rajesh Kumar** (2015). Magnetic nanoparticles coated glass wool for As (V) removal from drinking water. *Proceedings of the National Conference on Advanced Materials and Radiation Physics* [4th: Sangroor, Punjab: March 13-14, 2015]
4. Bandna Bharti, **Rajesh Kumar** (2015). Enhancement in the surface energy of Titanium Dioxide (TiO₂) thin films by glow discharge plasma treatment. *Proceedings of the International Convention of Engineering and Management* [Solan, India: April 4-5, 2015]
5. Bandna Bharti, Partha Bir Barman, **Rajesh Kumar** (2015). XRD analysis of Titanium Dioxide (TiO₂) and Fe doped TiO₂ nanoparticles by Williamson Hall Method, 4th National conference on advanced materials and radiation physics. *Proceedings of the AMRP2015* [Sangroor, Punjab: March 13-14, 2015]

**International Collaborative
Research with Gwangju
Institute of Science and
Technology (GIST),
South Korea**

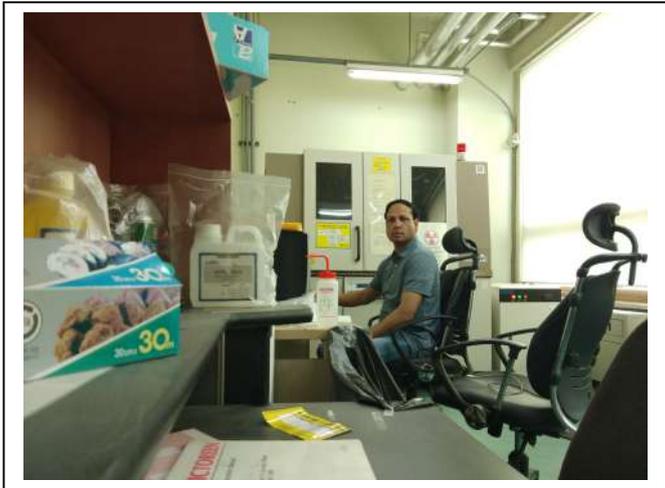


Collaborative Research Visit



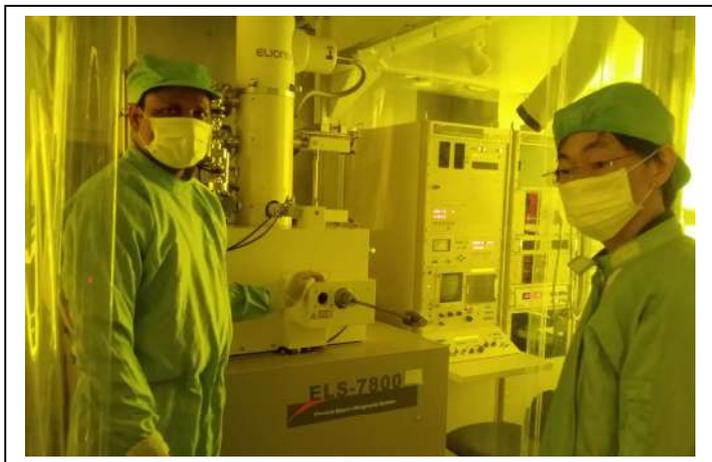
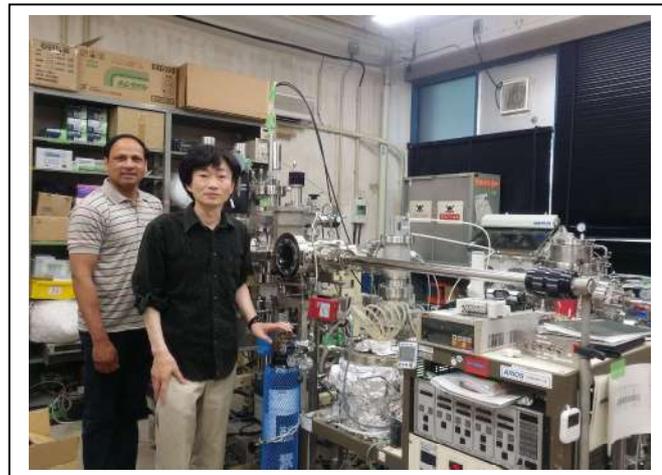
**International Collaborative
Research with Kyushu
University,
Japan**





Working on XRD

Visit of Japanese Collaborator to my Laboratory



International Collaborative Research with University of Osnabruk, Germany



German Prof. Joachim and Tobis's visit

My student's visit to DESY, Hemberg, Germany

