



Shaheed Rajguru College of Applied Sciences for Women

University of Delhi

Faculty Profile

Name		DR. MANOJ KUMAR JAISWAL			
Designation		ASSISTANT PROFESSOR			
Email		m.k.jaiswal7979@gmail.com manoj.kumar@rajguru.du.ac.in			
Degree		Institution		Year	
Ph. D. Physics		Guru Gobind Singh Indraprastha University, New Delhi		2015	
M. Phil. (Physics)		Sambalpur University, Sambalpur, Odisha		2006	
M. Sc. (Physics)		Sambalpur University, Sambalpur, Odisha.		2002	
B. Sc. (Hons. - Physics)		Utkal University, Bhubaneswar, Odisha.		1999	
10+2 Science		C. H. S. E., Bhubaneswar, Odisha.		1996	
Areas of Interest / Specialization					
1. Experimental Condensed Matter Physics 2. Solar Cell 3. Gas Sensors 4. Radiation monitoring and Dosimetry.					
EXPERIENCE:					
S. No.	Organization	Position Held	Period		Duration
			From	To	
1.	Shaheed Rajguru College of Applied Sciences for Women, University of Delhi.	Assistant Professor	05/08/2016	Till date	10+ Years
	Subjects Taught: 1. Waves and Optics, 2. Waves and Oscillations (NEP), 3. Electricity and Magnetism (NEP- LOCF-CBCS), 4. Electromagnetic Theory (NEP-LOCF-CBCS). 5. Light and Matter (NEP) 6. Classical Mechanics (4 th Year of NEP). 7. Research Methodology (Physics) (NEP). 8. Electrical Circuit Analysis (NEP) 9. Thermal and Statistical Physics, 10. Mechanics, 11. Mathematical Physics, 12. Digital Electronics, 13. Solid State Physics, 14. Classical Dynamics, 15. Physics of Earth. 16. Advanced Mathematical Physics – II (NEP). 17. LaTeX typesetting for Beginners.18. Essentials of Python				
2.	Lingaya’s University, Faridabad, Haryana.	Assistant Professor	12/01/2015	30/07/2016	01 Years and 06 Months
	Highlights and Responsibilities: Admission, Board of Studies (BOS), Research Assessment Committee (RAC), Syllabus Preparation, NAAC Visit, Lingaya’s News Letter, Discipline, Anti-ragging Squad.				
3.	School of Physical Sciences, Jawaharlal Nehru University, New-Delhi.	Junior Research Fellow	01/05/2008	30/04/2010	02 Years
4.	KIIT Engineering College, Gurgaon, Haryana.	Lecturer	07/08/2007	30/04/2008	09 Months

5.	Royal School of Management and Technology, Bhubaneswar, Odisha.	Lecturer	28/07/2006	02/01/2007	05 Months
6.	Gangadhar Meher (Autonomous) College, Sambalpur, Odisha. [Presently Gangadhar Meher University]	Lecturer (Contractual)	Feb. 2004	Sept. 2006	(Teaching M. Sc. and B. Sc. (H) Students)
Subjects Taught: <i>Electronics, Nuclear Physics, Solid State Physics, Statistical Mechanics, Quantum Mechanics, Classical Mechanics, Atomic Physics and Laser Physics.</i>					

EXPERIMENTAL SKILLS:

1. **Swift Heavy Ion Beam** (High Energy - MeV range) Experiment using 15 UD Pelletron Accelerator at IUAC, New Delhi, India.
2. **Ion Beam Analysis** (Rutherford Backscattering, ERDA, PIXE).
3. Low Energy Ion Beam Experiment (LEIB) (Low Energy – from KeV to few MeV range) - Ion Implantation and Ion Irradiation.
4. Hydrogen Beam irradiation – VECC Kolkata.
5. Gamma (γ) irradiation using radioactive Co^{60} source.
6. **Preparation of Nano Film:** by Electron Beam Evaporation Method, Sputtering (RF and DC), Thermal Evaporation Method, Sol-Gel Method (Spin and Dip Coating) and preparation of Nanowires.
7. Radiation Dosimetry and it's Applications.
8. Preparation of samples by Combustion Method.
9. XANES (X-ray absorption near edge structure) studies
10. **Optical Characterization Techniques:**

[II]. Fourier Transform Infra-Red Spectroscopy	[III]. UV-Visible Absorption Spectroscopy
[III]. Photoluminescence Spectroscopy	[IV]. Raman Spectroscopy
[IV]. Fluorescence Spectroscopy	

11. Thermoluminescence Spectral Analysis.
12. Gas Sensing Measurement.
13. Atomic Force Microscopy and Magnetic Force Microscopy (with Power Spectral Density - PSD analysis of surface, Grain size distribution, Roughness Analysis).
14. X-Ray Diffraction (Normal and GAXRD).
15. Kelvin Probe Measurement.
16. Electrical Property Measurement.
17. Transmission Electron Microscopy (TEM) with Electron Diffraction.
18. Scanning Electron Microscopy (SEM) with EDAX.
19. Magnetic Measurements using SQUID and VSM.
20. Thermal and Athermal Annealing.

Publications Profile

Patent: Title: Performance Enhanced Hemispherical Surface of Solar Cell — (Level - National — Ref. Number: 509643-001)

List of Research Publications:

1. **Fermi level shifting of TiO_2 nanostructures during dense electronic excitation.**

A. Kumar, Manoj Kumar Jaiswal, D. Kanjilal, R. K. Joshi and T. Mohanty.
Applied Physics Letters **99** (2011) 013109. American Institute of Physics.

Impact Factor: 3.6

2. **Swift heavy ion induced topography changes of Tin oxide thin films.**

Manoj Kumar Jaiswal, A. Kumar, D. Kanjilal and T. Mohanty.

Applied Surface Science **263** (2012) 586–590. Elsevier.

Impact Factor: 6.9

3. Studies of Dense Electronic Excitation induced Modification in Crystalline Fe doped SnO₂ Thin Films.

Manoj Kumar Jaiswal, D. Kanjilal, C. L. Dong, K. Asokan, S. Ojha and R. Kumar.

Applied Surface Science **332** (2015) 726–735. Elsevier.

Impact Factor: 6.9

4. Dense electronic excitation induced modification in TiO₂ doped SnO₂ Nanocomposite films.

Manoj Kumar Jaiswal, R. Kumar and D. Kanjilal.

Journal of Alloys and Compounds **610** (2014) 651–658. Elsevier.

Impact Factor: 6.3

5. Studies of dense electronic excitation induced modification in cobalt doped SnO₂ thin films prepared by RF sputtering technique.

Manoj Kumar Jaiswal and R. Kumar.

Journal of Alloys and Compounds **648** (2015) 550–558. Elsevier.

Impact Factor: 6.3

6. Effect of low energy (keV) ion irradiation on structural, optical and morphological properties of SnO₂–TiO₂ nanocomposite thin films.

V. Kumar, Manoj Kumar Jaiswal, R. Gupta, J. Ram, Indra Sulania, S. Ojha, Xin Sun, R. Kumar and N. Koratkar.

Journal of Materials Science: Materials in Electronics **29** (2018) 13328–13336. Springer.

Impact Factor: 2.8

7. Enhanced field emission from copper nanowires synthesized using ion track-etch membranes as scaffolds.

R. Gupta, R. P. Chauhan, S. K. Chakarvarti, Manoj Kumar Jaiswal, D. Ghoshal, S. Basu, S. F. Bartolucci, N. Koratkar, R. Kumar and S. Suresh.

Journal of Materials Science: Materials in Electronics **29** (2018) 19013–19027. Springer.

Impact Factor: 2.8

8. Structural and Optical Studies of 100 MeV Au irradiated thin films of tin oxide.

Manoj Kumar Jaiswal, D. Kanjilal and R. Kumar.

Nuclear Instruments and Methods in Physics Research B: Beam Interactions with Materials and Atoms **314** (2013) 170–175. Elsevier.

Impact Factor: 1.3

9. Swift Heavy Ion induced modification in Morphological and Physico-chemical properties of Tin Oxide Nanocomposites.

Manoj Kumar Jaiswal, D. Kanjilal and R. Kumar.

Nuclear Instruments and Methods in Physics Research B: Beam Interactions with Materials and Atoms **315** (2013) 179–183. Elsevier.

Impact Factor: 1.3

10. Modifications in physico-chemical properties of 100 MeV oxygen ions irradiated polyimide Kapton-H polymer.

S. K. Gupta, R. Gupta, P. Singh, V. Kumar, Manoj Kumar Jaiswal, S. K. Chakarvarti and R. Kumar.

Nuclear Instruments and Methods in Physics Research B: Beam Interactions with Materials and Atoms **406** (2017) 188–192. Elsevier.

Impact Factor: 1.3

11. Radiation induced nano-scale free volume modifications in amorphous polymeric material: a study using positron annihilation lifetime spectroscopy.

R. Kumar, P. Singh, S. K. Gupta, R. Gupta, Manoj Kumar Jaiswal, M. Prasad, A. Roychowdhury, R. P. Chauhan and D. Das.

Journal of Radioanalytical and Nuclear Chemistry **314** (2017) 1659–1666. Springer.

Impact Factor: 1.6

12. Modification in the Properties of SnO₂ & TiO₂ Nanocomposite Thin Films by Low Energy Ion Irradiation.

V. Kumar, Manoj Kumar Jaiswal, R. Gupta, P. K. Kulriya, K. Asokan, Indra Sulania, S. Ojha and R. Kumar.

Integrated Ferroelectrics **193** (2018) 88–99. Taylor & Francis.

Impact Factor: 0.70

Awards and Distinctions

IUAC COLLABORATED RESEARCH:

1. **Title of the Experiment:** Study of irradiation induced modifications of Tellurium oxide based Nanomaterials for application in Gas Sensor.

RESEARCH FELLOWSHIPS/GRANTS RECEIVED:

1. **Senior Research Fellow (2012)** - Council of Scientific and Industrial Research - New Delhi, Govt. of India.
2. **Travel Grant to JAPAN** from - Council of Scientific and Industrial Research - New Delhi, Govt. of India.
3. **Junior Research Fellow** – IUAC funded project, Jawaharlal Nehru University, New Delhi - Research Project - from 19/11/2010 to 31/03/2012.
4. **Junior Research Fellow** – IUAC funded project, GGSIP University, New Delhi - Research Project - from 01/05/2008 to 30/04/2010.

INTERNATIONAL CONFERENCE AND WORKSHOP ATTENDED:(Total-09)

- 1) **Oral Presentation:** 28th International Conference on Nuclear Tracks and Radiation Measurements (28th ICNTRM-2020): 6-10 November 2023, Gurugram University, Gurugram, Haryana, India.
- 2) **Oral Presentation:** International Conference on Nanotechnology (ALIGARH NANO-V) and STEM-Education and Research (STEMCON-16) held at Aligarh Muslim University, Aligarh, U.P., India from March 12-15, **2016**.
- 3) **Poster Presentation:** International Conference on Nanoscience and Nanotechnology - “Aligarh Nano IV International 2014” held at Aligarh Muslim University, Aligarh, U.P., India from March 07- 11, **2014**.
- 4) **Poster Presentation:** ICACS-25, International Conference on Atomic Collisions in Solids held at **Kyoto University, Kyoto, Japan** from 21 – 25 October **2012**.
- 5) **Poster Presentation:** SHIM-2012, 8th International Symposium on Swift Heavy Ions in Matter held at **Kyoto University, Kyoto, Japan** from 24 – 27 October **2012**.
- 6) **Attended:** EU-INDIA Workshop (1-2 November **2010**)&EICOON School (3-4 November **2010**) on “Nanomaterials for Sustainable Energy” organized by IIT, Delhi.
- 7) **Poster Presentation:** International Conference on Nano Science and Technology (ICONSAT – **2010**) held at IIT, Mumbai during February 17-20, 2010.
- 8) **Oral Presentation:** International conference on Photonics, Nanotechnology and Computer Applications(ICOPNAC – 2009) held at PRIST University, Thanjavur from 25th to 28th February **2009**.
- 9) **Poster Presentation:** Fourteenth Asia Pacific Academy of Materials (APAM) conference on State of Materials Research and new trends in Material Science and Indian-Russian Long Term cooperation (ILTP) Workshop on Problems of Nano Science and Technology held at National Physical Laboratory (NPL), New Delhi from 18th to 20th November **2008**.

NATIONAL CONFERENCE ATTENDED: (Total-07)

1. **Oral Presentation:** National Conference on Emerging Trends and Technologies in Sciences (NCETTS-2016) held at Aggarwal College Ballabgarh, Faridabad – 121004, Haryana, India from March 25-26, 2016.

2. **Oral Presentation**: National Symposium on “Innovations in Composites for general purpose to High end Applications” held at University School of Basic & Applied Sciences, Guru Gobind Singh Indraprastha University, New Delhi – 110078, Delhi, India from 17-18 February, 2015.
3. **Oral Presentation**: National Conference on Nanoscience & Nanotechnology (Aligarh Nano - III) held at Aligarh Muslim University, Aligarh, Uttar Pradesh, India from March 15-16, **2013**.
4. **Attended**: March Meeting – 2013 on Nanoscience & Condensed Matter Interface held at School of Physical Sciences, Jawaharlal Nehru University, New Delhi during March 7-8, **2013**.
5. **Oral Presentation**: National Conference on Photonics and Material Science (NCPMS-2008) held at Guru Jambheshwar University of Science and Technology, Hissar, Haryana, India from 24th to 25th October **2008**.
6. **Attended**: National Seminar on Perspectives in Neutrino Physics and INO held at Sambalpur University, Sambalpur, Orissa, India held during Feb. 17-18, **2007**.
7. **Oral Presentation**: National Conference on Physics of Electronic Materials and Devices (PEMD- 2005) held at Sambalpur University, Sambalpur, Orissa, India in February **2005**.

SCHOOL ATTENDED: (Total-01)

1. School on “Thin Film Magnetism” at UGC-DAE Consortium for Scientific Research, Indore, M.P., India held from 14-16th March **2012**.

WORKSHOP ATTENDED: (Total-06)

1. Workshop in “**M³- Mathematical Modeling with Mathematica**” in association with SCUBE Scientific Software Solutions, Wolfram Research Inc., USA., held at USBAS, GGSIP University, New Delhi on , March 20, **2014**.
2. "**ALIGARH NANO – I - Workshop on Nanoscience and Nanotechnology**" held at Aligarh Muslim University, Aligarh during March 26-27, **2011**.
3. Workshop on "**Science with ECR based keV ion beams**" held at *Variable Energy Cyclotron Center (VECC), Kolkata* during January 20-21, **2011**.
4. **48th Accelerator Users’ Workshop** held at *Inter University Accelerator Centre (IUAC), New-Delhi* held on July 6-7, 2010. – Awarded beam time.
5. Workshop on “**Anisotropic Nanostructures: Synthesis to Functionalization**” held at *Tata Institute of Fundamental Research (TIFR), Mumbai* on February 17, **2010**.
6. Workshop on “**Accelerator based research on Polymer science**” held at *Inter University Accelerator Centre (IUAC), New Delhi* held on 25th August **2008**.