


STANDARD TEMPLATE OF FACULTY PROFILE FOR UPLOADING OF UNIVERSITY WEBSITE

Title	DR.	First Name	RAJESH	Last Name	KUMAR	
Designation		Associate Professor of Physics				
School /Dept. Name		University School of Basic and Applied Sciences				
Address:		Dr. Rajesh Kumar Associate Professor of Physics University School of Basic and Applied Sciences Room No.: BFR-207, B-Block Guru Gobind Singh Indraprastha University (Govt. of NCT of Delhi) Sector 16-C, Dwarka, New Delhi-110078, India.				
Phone No.	Office	+91-11-25302406				
	Residence					
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Email	rajeshkumar@ipu.ac.in			kumarrpi@gmail.com		
Web Page (if any)	http://www.ipu.ac.in/usbas/Associate_Professors.php					
Subjects Taught	B.Tech (Physics, Materials Science) M. Tech (Engineering Physics) Ph.D (Physics)					
Areas of Interest/Specialization	<ul style="list-style-type: none"> • Materials Science (Experimental) • Condensed Matter Physics, Nanotechnology, Nanomaterials • Ion Beam Engineering of Nanostructure Materials • Synthesis of Nanomaterials/Nanocomposites/ Polymers/Nanocomposite Polymers, Template-Based Electro Deposition of Metal and Semiconductor Nanowires • Energy Storage Materials (Lithium-ion battery/Supercapacitor, Gas Sensors) • Nuclear Spectroscopy (PALS & DBS, HPGe, NaI etc.) • Thin Films 					
Experience (in years)	Total	22 Years				
	Industry	NIL				
	Teaching	17 Years				
	Research	22 Years				
Educational Qualifications	UG	B.Sc (Physics, Chemistry, Mathematics) (First Division)				
	PG	M.Sc. (Physics) (First Division)				
	Doctorate	Ph.D (Physics)				

	Any other	Post-Doctoral Fellow, Rensselaer Polytechnic Institute, New York, USA.
Research Publications in Journals (last 5 years)	<p>[1] Deepik Gupta, V. Chauhan, S. Upadhyay, N. Koratkar, F. Singh, S. Kumar, Aman Mahajan, Ramesh Chandra, Rajesh Kumar, “Defects engineering and enhancement in optical and structural properties of 2D-MoS₂ thin films by high energy ion beam irradiation,” <i>Materials Chemistry and Physics</i>, vol. 276, no. 2021, p. 125422, 2021, doi: 10.1016/j.matchemphys.2021.125422. (Elsevier).</p> <p>[2] Rashi Gupta, V. Kumar, J. Ram, V. Chauhan, D. Gupta, S. Kumar, N. Koratkar, Rajesh Kumar, “Influence of high energy (MeV) Au⁹⁺ ion irradiation for modification of properties in scaffold-assisted electro synthesized PbSe nanowires,” <i>Inorganic Chemistry Communications</i>, vol. 135, no. June 2021, p. 109093, 2022, doi: 10.1016/j.inoche.2021.109093. (Elsevier).</p> <p>[3] Vishnu Chauhan, D. Gupta, N. Koratkar, and Rajesh Kumar, “Phase transformation and enhanced blue photoluminescence of zirconium oxide polycrystalline thin film induced by Ni ion beam irradiation,” <i>Scientific Reports</i>, vol. 11, no. 1, pp. 1–16, 2021, doi: 10.1038/s41598-021-96961-w.</p> <p>[4] Deepika Gupta, V. Chauhan, N. Koratkar, F. Singh, and Rajesh Kumar, “High energy (MeV) ion beam induced modifications in Al₂O₃-ZnO multilayers thin films grown by ALD and enhancement in photoluminescence , optical and structural properties,” <i>Vacuum</i>, vol. 192, no. July, p. 110435, 2021, doi: 10.1016/j.vacuum.2021.110435. (Elsevier).</p> <p>[5] M. Saran, P. D. Sahare, V. Chauhan, Rajesh Kumar, and N. T. Mandlik, “Thermoluminescence in Eu doped NaLi₂PO₄TLD nanophosphor: Effect of particle size on TL characteristics,” <i>Journal of Luminescence</i>, vol. 238, no. November 2020, p. 118207, 2021, doi: 10.1016/j.jlumin.2021.118207. (Elsevier).</p> <p>[6] A. Kumari K. Kumari, R.Aljaw, P. Alvi, S. Dalela, M Ahmad, A. Chawla, Rajesh Kumar, A.Vij, S. Kumar,, “Role of La substitution on structural, optical, and multiferroic properties of BiFeO₃ nanoparticles,” <i>Applied Nanoscience</i> ,no. 0123456789, p. 13204, 2021, doi: 10.1007/s13204-021-01844-1. (Elsevier).</p> <p>[7] S. Kumar, G. Srivastava, G. Almutairi, Faheem Ahmed, Nagih M. Shaalan, S. Dalela, Rajesh Kumar, P. Kumar, P.A.Alvi, K. H. Chae, Hassan H.Hammud, K. Kumari, “Electronic structure and electrochemical properties of La-doped BiFeO₃ nanoparticles,” <i>Journal of Electron Spectroscopy and Related Phenomena</i>, vol. 253, no. May, p. 147138, 2021, doi: 10.1016/j.elspec.2021.147138. (Elsevier).</p> <p>[8] Deepika Gupta, V. Chauhan, N. Koratkar, and Rajesh Kumar, “Electronic structure engineering of 2-D MoS₂ sputtered thin films under ion beam irradiation: Induced by controlled defect generation,” <i>Ceramics International</i>, vol. 48, no. 3, pp. 2999–3019, 2022, doi: 10.1016/j.ceramint.2021.08.070. (Elsevier).</p> <p>[9] S. Kumar, S.Y. AlOmar, K. Kumari, F. Albalawi, Rajesh Kumar, F. Ahmed, N. Ahmad, S. Dwivedi, P.A. Alvi, “Structural, optical, electrical and antibacterial properties of fe-doped CeO₂ nanoparticles,” <i>Crystals</i>, vol. 11, no. 12, p. 11121594, 2021, doi: 10.3390/cryst11121594. MDPI, Switzerland.</p>	

- [10] **Rajesh Kumar**, V. Chauhan, N. Koratkar, S. Kumar, A. Sharma, Keun-Hwa Chae, Sung Ok Won, "Influence of high energy ion irradiation on structural, morphological and optical properties of high-k dielectric hafnium oxide (HfO₂) thin films grown by atomic layer deposition," *Journal of Alloys and Compounds*, vol. 831, p. 154698, 2020, doi: 10.1016/j.jallcom.2020.154698. (Elsevier).
- [11] Vikas Kumar, V. Chauhan, J. Ram, R. Gupta, S. Kumar, P. Chaudhary, B. C. Yadav, S. Ojha, I. Sulania, **Rajesh Kumar**, "Study of humidity sensing properties and ion beam induced modifications in SnO₂-TiO₂ nanocomposite thin films," *Surface and Coatings Technology*, vol. 392, 2019, p. 125768, 2020, doi: 10.1016/j.surfcoat.2020.125768. (Elsevier).
- [12] Jagjeevan Ram, R.G. Singh, F. Singh, V. Chauhan, D. Gupta, V. Kumar, U. Kumar, B.C. Yadav, **Rajesh Kumar**, "Ion beam engineering in WO₃-PEDOT: PSS hybrid nanocomposite thin films for gas sensing measurement at room temperature," *Inorganic Chemistry Communications*, vol. 119, no. June, p. 108000, 2020, doi: 10.1016/j.inoche.2020.108000. (Elsevier).
- [13] Vishnu Chauhan and R. Kumar, "Electronic excitation induced modifications in surface morphological, optical and physico-chemical properties of ALD grown nanocrystalline Al₂O₃ thin films," *Superlattices and Microstructures*, vol. 141, no. December 2019, p. 106389, 2020, doi: 10.1016/j.spmi.2020.106389. (Elsevier).
- [14] R. Gupta, R. P. Chauhan, and **Rajesh Kumar**, "Influence of gamma radiation on the optical, morphological, structural and electrical properties of electrodeposited lead selenide nanowires," *Optical Materials*, vol. 99, no. July, p. 109538, 2020, doi: 10.1016/j.optmat.2019.109538. (Elsevier).
- [15] Vishnu Chauhan and **Rajesh Kumar**, "Phase transformation and modifications in high-k ZrO₂ nanocrystalline thin films by low energy Kr⁵⁺ ion beam irradiation," *Materials Chemistry and Physics*, vol. 240, 2019, p. 122127, 2020, doi: 10.1016/j.matchemphys.2019.122127. (Elsevier).
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- [18] K. Kumari, Rezq Naji Aljawfi, A. K.Chawla, **Rajesh Kumar**, P. Alvi, Adil Alshoaibi, A.Vij, F.Ahmed, M.Abu-samak, S. Kumar, Engineering the optical properties of Cu doped CeO₂ NCs for application in white LED, *Ceramics International*, vol.46, no. 6 July, p. 7482, 2020. (Elsevier).
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recent developments,” *Inorganic Chemistry Communications*, vol. 121, no. July, p. 108200, 2020, doi: 10.1016/j.inoche.2020.108200. (Elsevier).

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- [23] J. Ram, R. G. S. F. Singh, V. Kumar, Vishnu, R. Gupta, U. Kumar, B.C. Yadav, **Rajesh Kumar**, “Development of WO₃-PEDOT: PSS hybrid nanocomposites based devices for liquefied petroleum gas (LPG) sensor,” *Journal of Materials Science: Materials in Electronics*, vol. 30, no. 14, pp. 13593–13603, 2019, doi: 10.1007/s10854-019-01728-9. (Springer).
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of PbSe nanowires,” *Journal of Materials Science: Materials in Electronics*, vol. 30, no. 3, pp. 2192–2212, 2019, doi: 10.1007/s10854-018-0491-1. (Springer).

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Papers Published in Conference Proceedings (last 5 years)	NIL			
Books Authored/ Book Volume Chapters	<ol style="list-style-type: none"> Chapter titled: “Radiation Physics and Chemistry of Polymeric Materials” Rajesh Kumar et al. published in the Radiation Effects in Polymeric Materials’ book (Springer), 2018 (ISSN 2364-1878 ISSN 2364-1886 (electronic), ISBN 978-3-319-46456-5 ISBN; 978-3-319-46458-9 (eBook). (Springer). Chapter titled: “Ion beam induced modifications in ZnO nanostructures and potential applications” Rajesh Kumar et al. published in Book Zinc oxide: Synthesis, Properties and Applications ISBN: 9780128189009 (Elsevier)-2020. Chapter titled: “Nanoscale Ferrite Thin Films Grown by Atomic Layer Deposition” Rajesh Kumar et al. Book: Ferrite Nanostructured Magnetic Materials (Elsevier)-2021. [In Press]. Chapter titled: “Dielectric properties of spinel ferrites nanostructures” Rajesh Kumar et al. Book: Ferrite Nanostructured Magnetic Materials (Elsevier)-2021. [In Press]. 			
No. of Conferences	National	Attended		Organized
		78		02
	International	29		01
Research Guidance	Awarded	PG	M. Phil	Doctorate
		20	N.A.	08
	Undergoing	NIL	N.A.	04
Research Projects	Completed	17 (UGC, DAE-BRNS, IUAC, DST, FRGS etc.)		
	Undergoing	02 (IUAC, New Delhi & FRGS)		

<p>Awards & Distinctions</p>	<ul style="list-style-type: none"> ➤ Stanford University, USA has adjudged Dr. Rajesh Kumar of Guru Gobind Singh Indraprastha University, New Delhi as among the World's Top 2% Scientists 2021. ➤ Faculty Achievement Award -with additional grant Rs. 100000/-). at Guru Gobind Singh Indraprastha University, New Delhi on 5th September, 2015 (Teacher's Day). ➤ First Prize & Best Researcher Award at Guru Gobind Singh Indraprastha University, New Delhi on 5th September, 2010 (Teacher's Day) from Hon'ble Vice Chancellor and Chief Guest Prof. Yashpal (Ex-UGC, Chairman). ➤ Best Researcher Award at Guru Gobind Singh Indraprastha University, New Delhi on 5th September, 2013 (Teacher's Day) from Hon'ble Vice Chancellor and Chief Guests Prof. R. K Shevgaonkar (Director, IIT, New Delhi and Prof. Devi Singh, Director of IIM, Lucknow). ➤ Indo-US Postdoctoral Raman Fellowship awarded by University Grants Commission (UGC), Govt. of India. ➤ Project Fellow, Sanctioned by Inter University Consortium for Department of Atomic Energy Facilities (IUC-DAEF), Kolkata Centre, Kolkata from April 1, 2001 to March 31, 2004. ➤ Post-Doctoral Fellowship (PDF) in South Korean research project, 2004 at Department of Physics, University of Rajasthan, Jaipur. ➤ Research Associateship (RA) from Council of Scientific Industrial Research (C.S.I.R), Govt. of India from 2005 to 2006. ➤ DST-ICTP Fellowship award for attending School on Ion Beam Analysis & Accelerator Applications at The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, ITALY, during March 13-29, 2006. ➤ Visiting Scientist (Indo-Russian), Conducted the Experiment at Joint Institute for Nuclear Research (J.I.N.R), Dubna, RUSSIA in 2011, by Department of Science & Technology (DST), Govt. of India. ➤ YOUNG SCIENTIST AWARD from Department of Science & Technology, Govt. of India under Fast Track Scheme (2006-2009). ➤ Subject expert nominated by Director, IUAC, New Delhi for IUAC sanctioned research project: JRF selection committee (2013-2018). ➤ Financial assistance for attending International Conferences by DST, Govt. of India. ➤ Financial assistance for attending International Conferences by CSIR, Govt. of India. ➤ Financial assistance for attending International Conferences by INSA Govt. of India. ➤ Visited, University of Puerto Rico, Rio Piedras campus, Department of Physics, San Juan, USA, 2018. ➤ Visited more than twelve countries for academic and research pursuits wherein USA, UK, Mexico, Russia, Poland, Germany, Italy, Spain, Japan, Finland, China and Australia are primarily worth-mentioning
<p>Administrative Assignments Handled</p>	<ol style="list-style-type: none"> (1) Assistant Proctor of GGSIP University, New Delhi (2013). (2) Program Coordinator/Deputy Program Coordinator P.G. Diploma in Radiological Physics from beginning (2012) to 2017. (3) P.G. Diploma in Radiological Physics Lab In charge from beginning (2012) to 2016. (4) M.Tech (Engineering Physics) Lab In charge one year. (5) B.Tech (Physics) Lab In charge (~ 1 Years). (6) Member in Time Table Committee (2011 to 2012). (7) Conducted Ph.D Directed Course final Exam in USBAS as Deputy Centre Superintendent in 2011. (8) Minor Committee University Examination (Regular & Reappear). (9) Conducted University CET Exams (B.Tech, M.B.B.S, MCA, MBA, BBA etc.) as University Representative (UR) at different centers in all over India (2008-2019). (10) University Final Semester Exams in different affiliated Colleges under GGSIPU as University Representative. (11) University Convocation-2012 as Member in Reception Committee. (12) Organized Expert Lectures for B.Tech, M.Tech (EP & Nano) & Ph.D Students in USBAS, GGSIP University (2009 & 2011). (13) Admission officer for various courses of G G S Indraprastha University, New Delhi. (14) Observer in admission of various courses in affiliated Colleges of G G S Indraprastha University, New Delhi.

	<p>(15) Convener of Academic audit (2012-13) and academic inspection committee in affiliated college of GGSIP University, New Delhi.</p> <p>(16) Convener of affiliation committee of two Medical Institutes with G G S Indraprastha University, New Delhi-2013.</p> <p>(17) Member in School Research Committee (SRC) since 2014 to till date.</p> <p>(18) Member in Board of Study (BOS) for two years (2014-2016 & 2021-2023).</p> <p>(19) Deputy Superintendent of University Spot Evaluation of End Term Exam-2014.</p> <p>(20) Deputy Center Superintendent of University Spot Evaluation of End Term Exam-2015</p> <p>(21) Additional Center Superintendent of University Spot Evaluation of End Term Exam-2016</p> <p>(22) Additional Center Superintendent of University Spot Evaluation of End Term Exam-2018</p> <p>(23) Convener of Academic audit (2018) and academic inspection committee in affiliated colleges of GGSIP University, New Delhi.</p> <p>(24) Convener of Academic audit/Joint Assessment Committee (JAC) (2019) and academic inspection committee in affiliated colleges of GGSIP University, New Delhi.</p> <p>(25) University Convocation-2019 in Stage Management Committee.</p> <p>(26) Additional Center Superintendent of University Spot Evaluation of End Term Exam-2019.</p> <p>(27) Additional Center Superintendent of University Spot Evaluation of End Term Exam-2020.</p> <p>(28) Convener of Academic Audit/Joint Assessment Committee (JAC) (2020) and academic inspection committee in affiliated colleges of GGSIP University, New Delhi.</p> <p>(29) Convener School Library Committee, GGSIP University-2020</p> <p>(30) Deputy Center Superintendent of Conduct University End Term Exam-2020</p> <p>(31) Member in CARE–Consortium for Academic and Research Ethics, Indraprastha Internal Quality Assurance Cell (IIQAC), Guru Gobind Singh Indraprastha University, New Delhi-2020.</p> <p>(32) B.Tech (Physics) Coordinator-2021</p> <p>(33) Faculty Coordinator in Science Club, GGSIP University, New Delhi-2021.</p> <p>(34) Committee Member in New Pension Scheme (NPS) to implement in GGSIP University, New Delhi-2021.</p> <p>(35) Committee Member in General Insurance Scheme (GIS) to implement in GGSIP University, New Delhi-2021.</p>
Association with Professional Bodies	<ol style="list-style-type: none"> 1. Member in Scientific Advisory Committee in International Nuclear Track Society. 2. Secretary of Nuclear Track Society (NTSI) of India. 3. Life Member of Indian Physics Teachers Association (IPTA). 4. Member of International Nuclear Track Society. 5. Life Member of Nuclear Track Society (NTSI) of India. 6. Editor of Nuclear Track Society (NTSI) of India. 7. Life Member and Executive Committee Member of Soft Materials Research Society
Any other Achievements	<p>Reviewer for National/International Journals:</p> <p>Have been referee for many International and National Journals.</p> <p>Keynote Speaker/ Invited Talks in National/International Conferences:</p> <ol style="list-style-type: none"> 1. Keynote Speaker, "Innovative Research in Language, Science and Management (IRLSM)", at DAV Centenary College, Faridabad, during 11-12 October, 2019. 2. International Conference on Science and Technology: Trends and Challenges (ICSTTC- 2018) organized by Gujranwala Guru Nanak Khalsa College, Ludhiana, April, 16-17, 2018. 3. Guest Lecture for M.Sc, B.Sc and faculty at Department of Physics, Aggarwal College Ballabgarh, Distt. Faridabad (Haryana) India, February, 2018. 4. 20th National Conference on Solid State Nuclear Track Detectors & Their Applications organized by Vidya Vikas Institute of Engineering and Technology, Mysore, India from October 26 - 28, 2017. 5. 19th National Conference on Solid State Nuclear Track Detectors & Their Applications at National Institute of Technology, Jalandhar, November, 19-21, 2015 6. 18th National Symposium on Solid State Nuclear Track Detectors & Their Applications at Department of Physics, Aggarwal College Ballabgarh, Distt. Faridabad (Haryana) India, during October 18-20, 2013. 7. National Conference on Recent Advancements in Science and Technology (RAST-2016) in collaboration with "Intellectuals Society for Socio-Techno Welfare", Ghaziabad organized by Arya P.G. College Panipat, during February 27-28, 2016.

8. National Conference on Emerging Trends on Technologies and Sciences (NCETTS-2016) organized by Aggarwal College Ballabgarh, Faridabad (Haryana) India, during March 25-26, 2016.
9. International Conference on Materials Science and Ionizing Radiation Safety & Awareness (ICMSIRSA –2016) at Department of Physics, Shivaji University, Kolhapur, during 28, January to 30th January, 2016.

Details of Conference/Seminar in which chaired session:

- (1) **Chaired** in National Seminar on Positron Annihilation at Saha Institute of Nuclear Physics (SINP), Govt. of India, Kolkata, during February 9-10, 2007.
- (2) **Chaired & Judge** (for Poster Presentation) in Conference on Accelerator & Low Level Radiation Safety at Inter University Accelerator Centre (IUAC), New Delhi, India during November 18-20, 2009.
- (3) **Chaired & Judge** in International Conference on Science and Technology: Trends and Challenges (ICSTTC-2018), Ludhiana, April, 16-17, 2018
- (4) **Chaired & Judge in** 20th National Conference on Solid State Nuclear Track Detectors & Their Applications, Mysore, India from October 26 - 28, 2017.
- (5) **Chaired & Judge in** 19th National Conference on Solid State Nuclear Track Detectors & Their Applications at NIT, Jalandhar, India from November, 19-21, 2015.
- (6) **Chaired & Judge in 18th** National Symposium on Solid State Nuclear Track Detectors & Their Applications at, Aggarwal College, Ballabgarh, Faridabad, (Haryana) India from October 18-20, 2013.
- (7) **Chaired & Judge in** National Conference on Recent Advancements in Science and Technology (RAST-2016), at Panipat, from February 27-28, 2016.
- (8) **Chaired & Judge National** in Conference on Emerging Trends on Technologies and Sciences (NCETTS-2016) at Aggarwal College Ballabgarh, Haryana, India, from March 25-26, 2016.
- (9) **Chaired & Judge** in National Conference On Nano Structured Materials and Device Technologies (NCNSMDT-2018) 21-22 December 2018 at Aggarwal College Ballabgarh, Haryana.
- (10) **Session Chaired** International Conference on Advances in Smart Materials and Emerging Technologies at Indira Gandhi Delhi Technical University for Women, Delhi, during 23-24, 2020.