


Faculty Profile: For University Website

DEPARTMENT OF PHYSICS

Personal Information	Dr. Bhupendra Singh Department of Physics Mobile: 9415990987 Email Id: bhupendra.singh@cuja.ac.in Orcid id: 0000-0002-6331-4811 Researcher ID: KHX-0029-2024 Scopus Author ID: 57207053314 GoogleScholar: https://scholar.google.com/citations?user=o9DnJ7UAAAAAJ&hl=en	
Educational Qualification:	<ul style="list-style-type: none"> • Ph. D. (2019), Banaras Hindu University, Varanasi, UP, India • M. Sc. (2014), Banaras Hindu University, Varanasi, UP, India • B. Sc. (2012), Banaras Hindu University, Varanasi, UP, India 	
Courses Taught:	<ul style="list-style-type: none"> • Mechanics • Electrodynamics • Instrumentation Physics • Classical Physics • Relativity • Atomic and Molecular Physics • Numerical Analysis and Programming • Magnetohydrodynamics • Group Theory and Molecular Spectra • Spectroscopy and Laser 	
Additional role/ responsibility:	1. Nodal Officer, Ek Bharat Shreshtha Bharat, CUJ, Ranchi	
Professional /Administrative Experience:	<ul style="list-style-type: none"> • Assistant Professor (16th March 2020), Department of Physics, Central University of Jharkhand, Ranchi, India 	
Awards & Honours	<ul style="list-style-type: none"> • CSIR-UGC JRF (2015), Council of Scientific & Industrial Research, Govt. of India • GATE (2014), Department of Education, MoE, New Delhi, India. • JEST (2014), SERB, New Delhi, India. 	

Research Area:	<ul style="list-style-type: none"> X-Ray Spectroscopy, Auger Spectroscopy, Electron Backscattering, Fragmentation Dynamics, Recoil Ion Momentum Spectrometry, Velocity Map Imaging, Quantum Mechanical Molecular Coherence.
Research Guidance:	M. Sc. : 12 (Awarded)
Brief introduction:	<p>Dr. Bhupendra Singh is actively involved in teaching and Research. Dr. Singh has keen interest and expertise basically on the instrumentation and experimental development in the field of atomic and molecular physics that includes x-ray spectroscopy, dissociation dynamics, multiple ionization processes, electron backscattering and Auger spectroscopy and also the knowledge about the working and functioning of sources like electron gun and ion source and different types of vacuum pumps like rotatory pumps, diffusion pumps and turbo molecular pumps. He has knowledge of Faraday cup, Si (P-I-N) detector, channel electron multiplier (CEM), cylindrical mirror analyzer (CMA) and parallel plate electrostatic analyzer. He is also involved in R&D in collaboration with PRL, Ahmedabad, Banaras Hindu University and other national importance institutes. Dr. Singh has a considerable teaching and research experience of around four years in various capacities at different levels. He has published seventeen research articles in different SCI journals of international and national repute. The twelve M. Sc. students have been awarded under his guidance. Many more are still pursuing thesis dissertation under him.</p>
Project (Completed/ Ongoing)	<p>1. Bhupendra Singh (PI) received a research Grant of 10.00 lakh from UGC-BSR Research Start-Up-Grant Scheme for Newly Recruited Faculty at Assistant Professors level In Science Departments on 2021 for the project entitles "Experimental Study of X-Ray and Back- Scattering Processes Induced by Electrons of Energy keV with Thick Targets." (Ref. No.: F.30-582/2021 (BSR)); Duration: 03 years, Status: Ongoing.</p>
Articles Published/ Accepted:	<p>Total Publications (17)</p> <ol style="list-style-type: none"> Measurement of angular distributions of K X-ray intensity of Ti and Cu thick targets following impact of 10-25keV electrons, B Singh, S Kumar, S Prajapati, B K Singh, X Llovet and R Shanker, Journal of Electron Spectroscopy and Related Phenomena, ISSN: 0368-2048, (2017), 216, 17, DOI: 10.1016/j.elspec.2017.02.002. Angular dependence of $K\beta/K\alpha$ intensity ratios of thick Ti and Cu pure elements from 10-25keV electron bombardment, B Singh, S Kumar, S Prajapati, B K Singh, X Llovet and R Shanker, Indian Journal of Physics, ISSN: 0973-1458, (2018), 92, 827, DOI: 10.1007/s12648-018-1184-6. Measurement of the angular distribution of thick target bremsstrahlung produced by 10-25keV electrons incident on Ti and Cu targets, B Singh, S Kumar, S Prajapati, B K Singh, X Llovet and R Shanker, Radiation Physics and

Chemistry, ISSN: 0969-806X, (2018), 150, 82, DOI: [10.1016/j.radphyschem.2018.04.027](https://doi.org/10.1016/j.radphyschem.2018.04.027).

4. Angular and impact energy dependence of intensity ratio of $K\alpha, \beta$ X-rays to underneath bremsstrahlung radiation emitted from 15 to 25keV electrons incident on Cu target, **B Singh**, S Prajapati, B K Singh and R Shanker, Applied Radiation and Isotopes, ISSN: 0969-8043, (2019), 148, 126, DOI: [10.1016/j.apradiso.2019.03.022](https://doi.org/10.1016/j.apradiso.2019.03.022).
5. Formation, stability and dissociation dynamics of N_2^{n+} cations ($n=1-2$) in 3.5keV $e^- - N_2$ collisions studied by energy resolved electron-ion coincidence technique, S Kumar, S Prajapati, **B Singh**, B K Singh and R Shanker, Journal of Physics B, ISSN: 0953-4075, (2018), 51, 075201, DOI: 10.1088/1361-6455/aaad93.
6. An experimental setup for studying the core-excited atoms and molecules by electron impact using energy analysed electron-ion coincidence technique, S Kumar, S Prajapati, **B Singh**, B K Singh and R Shanker, Indian Journal of Physics, ISSN: 0973-1458, (2017), 91(7), 721, DOI: [10.1007/s12648-017-0973-7](https://doi.org/10.1007/s12648-017-0973-7).
7. Electron excited multiply charged Argon ions studied by means of an energy resolved electron-ion coincidence technique, S Kumar, S Prajapati, **B Singh**, B K Singh and R Shanker, European Physical Journal D, ISSN: 1434-6060, (2017), 71(3), 1, DOI: [10.1140/epjd/e2016-70583-8](https://doi.org/10.1140/epjd/e2016-70583-8).
8. Measurement of ion species produced due to bombardment of 450 eV N_2^+ ions with hydrocarbons-covered surface of tungsten: Formation of tungsten nitride, S Kumar, P Bhatt, S Prajapati, **B Singh**, B K Singh and R Shanker, Nuclear Instruments and Methods in Physics Research B, ISSN: 0168-583X, (2016), 380, 50, DOI: [10.1016/j.nimb.2016.05.004](https://doi.org/10.1016/j.nimb.2016.05.004).
9. Spectral energy and angular distributions of bremsstrahlung radiation produced by 3.5keV electrons in scattering with a free SF₆ molecule, S Prajapati, **B Singh**, B K Singh and R Shanker, European Physical Journal D, ISSN: 1434-6060, (2019), 73(7), 1, DOI: [10.1140/epjd/e2019-90655-5](https://doi.org/10.1140/epjd/e2019-90655-5).
10. Study of multiply charged Argon-ions formed by decay of 2p-hole state under $e^- - Ar$ collision employing energy selected ion coincidence technique, S Kumar, S Prajapati, **B Singh**, B K Singh and R Shanker, Journal of Physics. Conference Series (Online), ISSN:1742-6588, (2017), 875, 052021, DOI: [10.1088/1742-6596/875/6/052021](https://doi.org/10.1088/1742-6596/875/6/052021).
11. A study of the mean kinetic energy of recoil ions from ion-charge-resolved electron spectra produced in 3.5keV electron-argon collisions, S Prajapati, S Kumar, **B Singh**, B K Singh and R Shanker, Journal of Electron Spectroscopy and Related Phenomena, ISSN: 0368-2048, (2019), 230, 46, DOI: 10.1016/j.elspec.2018.02.002.

	<p>12. Experimental evidence of molecular coherence effects in bremsstrahlung radiation processes, S Prajapati, B Singh, S Kumar, B K Singh and R Shanker, Journal of physics B, ISSN: 0953-4075, (2019), 52, 145201, DOI:10.1088/1361-6455/ab22f1.</p> <p>13. Study of anisotropy of bremsstrahlung radiation emitted from 4.0keV electrons in scattering by CH₄ molecule, S Prajapati, B Singh, B K Singh and R Shanker, Radiation Physics and Chemistry, ISSN: 0969-806X, (2018), 153, 92, DOI: 10.1016/j.radphyschem.2018.09.015.</p> <p>14. Angular and impact energy dependence of intensity ratio of K_{α,β} x-rays to bremsstrahlung radiation emitted from 10-25 keV electrons incident on a pure thick Cu (Z=29) target, S Prajapati, B Singh, B K Singh, X Llovet and R Shanker, AIP Conference Proceedings, ISSN: 0094-243X, (2019), 2142, 140006, DOI: 10.1063/1.5122519.</p> <p>15. Energy and angular distribution of bremsstrahlung produced in collisions of 4keV electrons incident on CH₄ molecule, S Prajapati, B Singh, B K Singh and R Shanker, AIP Conference Proceedings, ISSN: 0094-243X, (2019), 2142(1), 140016, DOI: 10.1063/1.5122529.</p> <p>16. Impact energy- and angular dependence of L X-ray emission from thick W (Z=74) element induced by 15-25keV electrons, B Singh, S Prajapati, B K Singh and R Shanker, Atoms, ISSN: 2218-2004, (2020), 8, 82. DOI: 10.3390/atoms8040082.</p> <p>17. Absolute double differential cross sections of bremsstrahlung produced from 4.0keV electrons incident on free Ar atoms, S Prajapati, B Singh, S Kumar, B K Singh, C A Quarles and R Shanker, Atoms, ISSN: 2218-2004, (2020), 8, 72. DOI: 10.3390/atoms8040072.</p>
<p>Seminar/ Workshop/ Conference Participation:</p>	<p>International Conference/Workshop</p> <ol style="list-style-type: none"> 1. 8th One-day Conference on Recent Trends in Research, "Construction and study of Time of Flight Spectrometer (TOF)", Department of Physics, Banaras Hindu University, 07 February 2015. 2. UGC Workshop on Physics of Particles, Nuclei and Related Instrumentation at Department of Physics, Banaras Hindu University, 27-31 January 2015. 3. Summer school on Nuclear and Particle Physics, at Department of Physics, Banaras Hindu University, September 23-October 12 January 2015. 4. International Topical Conference on Charged Particle Collisions and Electronic processes in Atoms, Molecules and Materials (q-PaCE 2016), "Mass Spectrum of Product Ions from the Collision

	<p>of 450eV N_2^+ with Hydrocarbon covered surface of Tungsten”, Indian School of Mines(ISM)Dhanbad, 9-11 January2016.</p> <ol style="list-style-type: none"> 5. 21st National Conference on Atomic and Molecular Physics (NCAMP-2017), “Measurement of angular distribution of K x-ray intensity of Ti and Cu thick targets following impact of 10-25keVelectrons”, at Physical Research Laboratory, Ahmedabad, 3-6 January 2017. 6 7th Topical Conference of the Indian Society of Atomic and Molecular Physics (ISAMP-TC7)“Measurement of the angular distributions of thick target bremsstrahlung produced by 10-25keV electrons incident on thick Ti and Cu pure elements”, at IISER/IIT Tirupati, 6-8 January2018. 7 National Conference on Advances in Spectroscopic Techniques and Materials (ASTM-2018), “Angular dependence of K_β/K_α intensity ratios of thick Ti and Cu pure elements from10-25keV electron bombardment”, organized by Department of Applied Physics, Indian Institute of Technology(ISM), Dhanbad,14-16 March 2018. 8 International Conference on Advances in Basic Sciences (ICABS19), “Angular and impact energy dependence of intensity ratio of K_{α}, βx-rays to bremsstrahlung radiation emitted from10-25 keV electrons incident on a pure thick Cu (Z=29) target”, organized by GDC Memorial College, Bahal, District Bhiwani(Haryana),India, 7-9 February2019. 9 22ndNationalConferenceonAtomicandMolecularPhysics(22ndNCA MP2019),“Measurement of angular distribution of $L\alpha, L\beta$ x-rays of Pt thick target following impact of15-25keVelectrons”,held at Indian Institute of Technology Kanpur, March 25-28, 2019. 10 International Conference on “Recent Trends in Physics cum Alumni-Teachers Meet (ICRTPAM2024), “Impact Energy and Angular Dependence of L X-Ray Emission from a Thick Polycrystalline Tungsten Element Induced by 15-25 keV electrons”, held at Department of Physics, Banaras Hindu University, February 5-7, 2024.
Any other information:	<ul style="list-style-type: none"> • Life Membership (1627) of Indian Society of Atomic and Molecular Physics

Updated as on	12 th April 2024
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