




UNIVERSITY OF KOTA, KOTA

Faculty Details

Title	Dr.	First Name	Ghanshyam	Last Name	Sharma	Photograph
Designation	Associate Professor					
Address	Department of Pure & Applied Physics University of Kota, Near Kabir Circle, Kota-324010 Rajasthan, India					
Phone No. Office	+91-744-2471038					
Mobile	+91-94147-87629					
E-mail	gsharma@uok.ac.in, gsphysics@gmail.com					
Educational Qualifications						
Degree	Institution			Year		
Ph.D.	University of Rajasthan, Jaipur			2010		
Title: Study of electronic structure in some technologically important alloys and compounds						
M.Sc. (Physics)	University of Rajasthan, Jaipur			2003		
Career Profile						
UG Teaching: 12 Years			PG teaching: 13Years			
July 2004- June 2005		: Assistant Professor, MGIAS, JECRC foundation, Jaipur				
July 2005- July 2010		: Assistant Professor, Banasthali University, Banasthali				
August 2010-July 2012		: Associate Professor, Banasthali University, Banasthali				
July 2012-February 2013		: Assistant Professor, University of Kota, Kota				
February 2013-Continued		: Associate Professor, University of Kota, Kota				
Area of Interest/ Specialization						
Electronic, structural and optical properties of doped and undoped binary semiconductors using experimental and <i>ab-initio</i> techniques, synthesis and characterization of Pd, Cd and Zn based nanowires for potential applications.						
Subject Taught						
UG: Electricity & Magnetism Mechanics Optics Nuclear & Solid state Physics Elementary Quantum Mechanics Applied Physics Waves & Oscillations			PG: Quantum Mechanics Nuclear Physics Physics of nanostructures and nanotechnology Bio-Physics			
Research Guide: PhD						
02 (Awarded), 05 (Ongoing)						
Publication Profile						
(a) Research Papers published in Refereed/Peer Reviews Journals/Books:						

In Journals:

1. **Electron momentum distribution in SnS:** G. Sharma, M. Sharma, M. C. Mishra, K. B. Joshi, R. K. Kothari and B. K. Sharma, Phys. Status Solidi B **246**, 2263-2269 (2009).
2. **Electronic structure of AlAs: A Compton profile study:** G. Sharma, K. B. Joshi, M. C. Mishra, R. K. Kothari, Y. C. Sharma, V. Vyas and B. K. Sharma, Journal of alloys and compounds **485**, 682-686 (2009).
3. **A study of electronic structure of CdSe using Compton scattering technique:** M. S. Dhaka, G. Sharma, K. B. Joshi, M. C. Mishra, R. K. Kothari, and B. K. Sharma, Physica B **405**, 3537-3542 (2010).
4. **Ab-initio determination of X-ray structure factors and the Compton profiles of CdO:** M. S. Dhaka, U. Paliwal, G. Sharma, K. B. Joshi, M. C. Mishra, R. K. Kothari, and B. K. Sharma, Journal of alloys and compounds **501**, 136-142 (2010).
5. **Modeling and simulation of GaN/Al_{0.3}Ga_{0.7}N new multilayer nano-heterostructure:** P. A. Alvi, S. Gupta, M.J. Siddiqui, G. Sharma and S. Dalela, Physica B **405**, 2431-2435 (2010).
6. **Affects of Al concentration on GaN/Al_xGa_{1-x}N new modeled multilayer nano-heterostructure:** P. A. Alvi, S. Gupta, P. Vijay, G. Sharma and M.J. Siddiqui, Physica B **405**, 3624-3629 (2010).
7. **Electron momentum density distribution in Cd₃P₂:** M. S. Dhaka, G. Sharma, M. C. Mishra, K. B. Joshi, R. K. Kothari and B. K. Sharma, Computer Phys. Communications **182**, 2017-2020 (2011).
8. **Electronic properties of SnTe: A First Principles Study:** G. Sharma, P. Bhambhani, N. Munjal, V. Sharma and B.K. Sharma, J. of Nano. Electron. Phys. **3**, 341-347 (2011).
9. **Electronic structure and magnetic properties of Co doped ZnO:** A. Rathor, E. Chaturvedi, G. Sharma, V. Sharma, O.U. Okeke, J. of Nano. Electron. Phys. **3**, 268-273 (2011).
10. **Electron momentum density distribution in Ti-Cu:** G. Sharma, V. Sharma, M. C. Mishra, M.S. Dhaka and B. K. Sharma, Intermetallics **19**, 666-670 (2011).
11. **Compton profile and charge transfer study in intermetallic Ti-Al system:** G. Sharma, K. B. Joshi, M. C. Mishra, R. K. Kothari, M. S. Dhaka and B. K. Sharma, Intermetallics **19**, 1107-1114 (2011).
12. **Electron momentum density in Multi Wall Carbon Nanotubes:** G. Sharma, K.B. Joshi, M.C. Mishra, S. Shrivastava, Y.K. Vijay and B.K. Sharma, Physica E **43**, 1084-1086 (2011).
13. **A study of electron momentum density distribution in Al₂O₃ Ceramics:** V. Vyas, R. Kumar, M. C. Mishra, R. K. Kothari, G. Sharma and B. K. Sharma, Physica Scripta **84**, 025601 1-5 (2011).
14. **Electron momentum density and X-ray structure factors of copper:** N. Munjal, P. Bhambhani, V. Vyas, P. A. Alvi, G. Sharma and B.K. Sharma, WJCM **1**, 70-76 (2011).
15. **Ab-initio study of electronic and elastic properties of beryllium-chalcogenides BeX (X= S, Se and Te):** N. Munjal, G. Sharma, V. Sharma, V. Vyas, B.K. Sharma and J. E. Lowther, Physica Scripta **84**, 035704 1-10 (2011).
16. **Size dependent electron momentum density distribution in ZnS:** M.C. Mishra, R. Kumar, G. Sharma, Y.K. Vijay and B.K. Sharma, Physica B **406**, 4307-4311 (2011).
17. **Electronic structure of CaX (X=O, S, Se) compounds using Compton spectroscopy:** M.C. Mishra, G. Sharma, R.K. Kothari, Y.K. Vijay and B. K. Sharma, Computational Mat. Sci. **51**, 340-346 (2012).
18. **Electron momentum density and phase transition in SrO:** R. Kumar, N. Munjal, G. Sharma, V. Vyas, M.S. Dhaka, B. K. Sharma, Phase Transition **85**, 1098 (2012).

19. **Ab-initio study of structural and electronic properties of AlAs:** N. Munjal, G. Sharma, V. Vyas, K.B. Joshi, B. K. Sharma, Philosophical Magazine **92**, 3101 (2012).
20. **Electronic structure and elastic properties of TiB₂ and ZrB₂:** R. Kumar, M.C. Mishra, B.K. Sharma, G. Sharma, V. Vyas, V. Sharma, J. E. Lowther, Computational Mat. Sci. **61**, 150-157 (2012).
21. **Ab-initio study of phase transition and electron momentum density in PbTe:** P. Bhambhani and G. Sharma, Phase Transition **86**, 551 (2013).
22. **Electronic structure of nano-sized ZnO: A Compton profile study:** R. Kumar, M.C. Mishra, B.K. Sharma, V. Vyas, G. Sharma, Electronic Materials Letters **9**, 19 (2013).
23. **Electronic structure of Ti-Al from first-principles:** G. Sharma, V. Sharma, B.K. Sharma, J. of Advanced Phys. **2**, 45 (2013).
24. **Analysis of the electronic structure of ZrO₂ by Compton spectroscopy:** F. M. Mahammad, S. F. Mahammed, R. Kumar, Y. K. Vijay, B. K. Sharma, G. Sharma, J. of Exp. & Theoretical Phys. **117**, 139-143 (2013).
25. **Electron momentum density, band structure and structural properties of SrS:** G. Sharma, N. Munjal, V. Vyas, R. Kumar, B.K. Sharma, K.B. Joshi, J. of Exp. & Theoretical Phys. **117**, 747-753 (2013).
26. **Electron momentum density distribution in hcp-Ti:** G. Sharma, V. Vyas, B.K. Sharma, Applied Science Focus **1**, 238-241 (2013).
27. **Electron momentum density and phase transition in ZnS:** N. Munjal, V. Vyas, G. Sharma, M. C. Mishra, B. K. Sharma, J. of Theoretical Chemistry **2013**, Article ID 349870, 7 pages (2013).
28. **Electronic properties of ZnO: Band structure and Directional Compton profiles:** G. Sharma, M.C. Mishra, M.S. Dhaka, R.K. Kothari, K.B. Joshi and B. K. Sharma, J. Electronic Mat **42**, 3429-3437 (2013).
29. **Electronic structure and momentum density of BaO and BaS:** R. Kumar, B.K. Sharma, G. Sharma, Advances in Condensed Matter Physics **2013**, Article ID 415726, 6 pages (2013).
30. **High pressure study of structural and electronic properties of PbSe:** P. Bhambhani, K. Kabra, B.K. Sharma, G. Sharma, J. of Solid State Phys. **2014**, Article ID 921092, 7 pages (2014)
31. **Fabrication of Hierarchical Flower shaped PbS crystals via hydrothermal and microwave routes:** P. Bhambhani, K. Kabra, D. Kumar, G. Sharma, B.K. Sharma, Advanced Materials Research, **1105**, 88 (2015).
32. **Electronic Properties of Mg_xCa_{1-x}O(x = 0.0, 0.25, 0.50, 0.75 and 1.0): A First Principles Study:** N. Munjal, G. Sharma, Research Journal of Pharmaceutical, Biological and Chemical Sciences **6**, 428-35 (2015).
33. **First principle study of phase transition in CaO:** N. Munjal, K. Bhakri, and G. Sharma, Journal of Chemical and Pharmaceutical Research **7**, 289-291 (2015).
34. **Ab-Initio Determination of Electronic Structure of PbS_{1-x}Sex:** K. Kabra, P. Bambhani, G. Sharma, and B. K. Sharma, Adv. Sci. Lett. **21**, 2823-2825 (2015).
35. **Theoretical Investigation of Structural and Electronic Properties of PbSe_{1-x}Te_x:** P. Bhambhani, K. Kabra, and G. Sharma, Adv. Sci. Lett. **21**, 2779-2782 (2015).
36. **Investigation of structural and electronic properties of Zn₃P₂: Theory and Experiment:** M. Kaur, K. Kabra, R. Kumar, B. K. Sharma and G. Sharma, J. Electronic Mat. **45**, 2847-2854 (2016).
37. **Phase transition in LaS:** N. Munjal, K. Kaur, and G. Sharma, JCPS **9**, 3308-09 (2016).
38. **Electronic structure of CuO from first-principles and experiment:** M. Vashistha, K.

Kabra, V. Vyas, R. Kumar, B. K. Sharma and **G. Sharma**, Quantum Matter **5**, 717-720 (2016).

39. **Electronic structure of VO₂ using Compton spectroscopy**: M. Vashistha, D.R. Phalasal, K. Kabra, R. Kumar, B. K. Sharma, and **G. Sharma**, Materials Focus **5**(6), 517-523 (2016).
40. **Structural, electronic and elastic properties of Zn₃As₂**: M. Kaur, K. Kabra, R. Kumar, B. K. Sharma and **G. Sharma**, Journal of alloys and compounds **709**, 179-186 (2017).
41. **Compton scattering study of MnO₂**: M. Vashistha, D.R. Phalasal, K. Kabra, R. Kumar, B.K. Sharma and **G. Sharma**, Accepted in Integrated Ferroelectrics 2017.

In Book/Chapter:

1. **Electronic structure and momentum density of some binary systems: Theory and Experiment**: **G. Sharma**, ISBN: 978-3-8454-2498-9, LAMBERT Academic Publishing, Germany, 2011.
2. **Ab-initio determination of pressure dependent electronic and optical properties of lead sulfide for energy applications**: P. Bhambhani and **G. Sharma**, Advanced Materials Series, Chapter 8, p.p. 327-344, 2014, WILEY-Scrivener Publishing, USA.
3. **Proceedings of National School on Quantum Mechanics 2013**, K.P. Maheshwari, N.K. Jaiman, **G. Sharma**, N.Munjal, Organized by University of Kota, Kota.
4. **Ab-initio Investigation of Band Gap Variation in PbS Nanotubes With Diameter**, Conference proceeding: National Conference on Advanced functional materials and their application, AFMA-2015, M. Kaur, K. Kabra, B. K. Sharma and **G. Sharma**, ISBN No. : 978-81-7233-976-0, pp.: 25-28.

(b) Other Publications in International/National Conferences/Symposium/Schools:

1. **Ionicity and bonding in HgX₂ compounds using Compton scattering**: M. S. Dhaka, M. Sharma, **G. Sharma**, M.C. Mishra, R. K. Kothari and B.K. Sharma, DAE-SSPS **54**, 719 (2009).
2. **Compton profile study of polycrystalline ZnBr₂**: M.S. Dhaka, **G. Sharma**, M.C. Mishra, R.K. Kothari and B.K. Sharma, AIP Conf. Proc. **1313**, 221 (2010).
3. **Compton Profile Study of Intermetallic Ti₃Al**: V. Vyas, **G. Sharma**, M.C. Mishra, K.B. Joshi and B.K. Sharma, AIP Conf. Proc. **1391**, 122 (2011).
4. **Study of phase transition and cohesive energy in MgO**: N. Munjal, P. Bhambhani, **G. Sharma**, V. Vyas and B. K. Sharma, J. of Phys.:Conf. Series. **377**, 01267 (2012).
5. **First-principles study of B1 to B2 phase transition in PbS**: P. Bhambhani, N. Munjal, **G. Sharma**, B. K. Sharma, J. of Phys.:Conf. Series **377**, 01268 (2012).
6. **Compton profile study of ZrB₂**: V. Vyas, R. Kumar, **G. Sharma**, and B. K. Sharma, AIP Conf. Proc. **1536**, 387 (2013).
7. **Electronic structure of polycrystalline Cd metal using ²⁴¹Am radioisotope**: M.S.Dhaka, **G. Sharma**, M.C.Mishra, and B.K.Sharma, AIP Conference Proceedings **1591**, 1075 (2014).
8. **Electronic Structure Study of TiB₂ and Ti₂B**: M. Vashistha, K. Kabra, V. Vyas, **G. Sharma**, AIP Conf. Proc, **1665**, 090039 (2015).

(c) Citations

Citations-163, h-index- 7, i10 index-6

Conference Organization/Presentations (in the last three years)

(a) Organization of a conference:

1. Co-Convener, National Symposium on Materials for Advanced Technology 27-29 March, 2011 held at Banasthali University, Banasthali.
2. Coordinator, Energy Meet 2012 held at University of Kota, Kota, on 22 November, 2012.

3. Organizing Secretary, National School on Quantum Mechanics held at University of Kota, Kota, from 05-09 March, 2013.
4. Convener, Energy Meet 2013 held at University of Kota, Kota, on 02 December, 2013.
5. Coordinator, National School on Quantum Mechanics 2014, February 18-22, 2014, University of Kota, Kota.
6. Deputy Coordinator, Refresher Course in Experimental Physics, January 09-25, 2014, University of Kota, Kota.
7. Co-convener, National Workshop on Opportunities and Challenges of Life-A Road Map Towards Successful Career” organized by the Placement and Counseling Cell, University of Kota during 3-4 July, 2014.
8. Coordinator, PhD Course work programme-2015 held from 09 March to 31 March, 2015 at University of Kota, Kota.
9. Member, Organizing Committee of 69th Annual Conference of ISAS during 14-16 December, 2015 at University of Kota, Kota.
10. Organizing Secretary, National School on Quantum Mechanics 2015 held at University of Kota, Kota during 20-25 December, 2015.
11. Convener, Energy Meet 2015 held at University of Kota, Kota on December 11, 2015.
12. Coordinator, Refresher Course of HRDC-JNVU, Jodhpur held at University of Kota, Kota during May 11- 31, 2016.
13. Member, Organizing Committee, Workshop on Academic Ethics and Integrity held on 27 July, 2017, University of Kota, Kota.

(b) Participation as Paper/Poster Presenter etc:

Paper/Poster Presentations:

1. **Electronic structure of intermetallic Ti-Al: A First principle study:** G. Sharma, V. Sharma, and B. K. Sharma, Accepted in KKR Hands-On course 4-6 October, 2010, Daresbury Laboratory and Chester, UK.
2. **Electron momentum density in noncrystalline ZnS:** G. Sharma, M. C. Mishra and B. K. Sharma, Presented in ICNANO 2011, University of Delhi, New Delhi, 18-21 December, 2011.
3. **First-principles study of structural properties of AIs:** G. Sharma, N. Munjal, V. Vyas and B.K. Sharma, Presented in ICOCENT, Amity University, Jaipur, 1-2 March, 2012.
4. **Electron Momentum Density Distribution in CaO:** G. Sharma, M. C. Mishra and B. K. Sharma, Presented in ICGTCS, Udaipur, 3-4 March, 2012.
5. **Electronic and optical properties of lead sulphide:** G. Sharma, Presented in Energy Meet 2012 22 November, 2012 held at University of Kota, Kota.
6. **Structural and electronic properties of BeS:** N. Munjal, G. Sharma, Presented in National School on Quantum Mechanics during 05-09 March, 2013, University of Kota, Kota.
7. **Electronic structure study of TiB₂:** M. Vashistha, V. Munjal, G. Sharma, V. Vyas, Presented in National School on Quantum Mechanics during 05-09 March, 2013, University of Kota, Kota.
8. **Effect of Se doping on structural properties of PbS_{1-x}Se_x:** P. Bhambhani, G. Sharma, Presented in Energy Meet-2013, University of Kota, 02 December, 2013.
9. **Investigation of variation in energy-gap of PbS_{1-x}Se_x with doping concentration:** G. Sharma, P. Bhambhani, Presented in Energy Meet-2013, University of Kota, 02 December, 2013.
10. **Electron momentum density in CuO:** M. Vashistha, K. Kabra, B. K. Sharma and G. Sharma, Presented in National School on Quantum Mechanics during 20-25 December, 2015 at University of Kota, Kota.

11. **Ab-initio determination of electronic structure of PbS nanowires with diameter:** M. Kaur, K. Kabra, B. K. Sharma and **G. Sharma**, Presented in National School on Quantum Mechanics during 20-25 December, 2015 at University of Kota, Kota.
12. **High Pressure Study of A II-V group compound Zn₃As₂:** **G. Sharma**, M. Kaur, K. Kabra, International Workshop on fundamentals of solar thermal technologies, December 5-6 2016 at University of Kota, Kota.
13. **Formation Energy of Zn₃As₂: Theory and Experiment:** M. Kaur, K. Kabra, **G. Sharma**, International Workshop on fundamentals of solar thermal technologies, December 5-6 2016 at University of Kota, Kota.
14. **First principles investigation of electronic properties of MnO₂:** **G. Sharma**, K. Kabra, M. Vashistha, M. Kaur, International Workshop on fundamentals of solar thermal technologies, December 5-6 2016 at University of Kota, Kota.
15. **Electron momentum density in VO₂:** K. Kabra, **G. Sharma**, M. Vashistha, M.Kaur, International Workshop on fundamentals of solar thermal technologies, December 5-6 2016 at University of Kota, Kota.

Invited talks/expert lectures/Session Chair etc:

1. **The Hellmann-Feynman theorem in Quantum Mechanics:** Delivered in National School on Quantum Mechanics during 18-22 February, 2014, University of Kota, Kota.
2. **Problems encountered by researchers in India:** Delivered on 23 July, 2013 to CSI students, University of Kota, Kota.
3. **Chair the session in the Energy Meet 2014** held at University of Kota, Kota, during November 14-15, 2014.
4. **Lecture on citations, h-index and i10-index:** Delivered in PhD Course work programme-2015 held from 09 March to 31 March, 2015 at University of Kota, Kota.
5. **Optical Properties of Low Dimensional PbS-Experimental and Theoretical Investigations:** Delivered in Advancement of Material Science and Physics (WAMP-2015) during 19-21 November, 2015 at Manipal University Jaipur.
6. **Perturbed harmonic oscillator problem in Quantum Mechanics:** Delivered in National School on Quantum Mechanics during 20-25 December, 2015, University of Kota, Kota.

Research Projects (Major Grants/Research Collaboration):

S.N.	Title	Funding Agency	Duration
1.	Compton profile study of some alloys and compounds	UGC, New Delhi	2007-2009
2.	Electron momentum density of some binary compounds in bulk and nanophase	UGC, New Delhi	2011-2013
3.	Study of the electronic, optical and structural properties of lead-chalcogenides PbX (X=S, Se, Te)	CSIR, New Delhi	2012-2015
4.	Study of electronic and optical properties of Zn ₃ X ₂ (X=N, P, As) semiconductor compounds for solar cell applications	DST-SERB, New Delhi (OYS-Scheme)	2013-2016

Association with Professional Bodies

(a) Reviewing

Reviewed many articles of following SCI journals;

- Computational Material Science
- Science of Advanced Materials
- International Journal of Materials Research,
- International Journal of Vocational and Technical Education,
- Indian Journal of Pure & Applied Physics
- Research Journal of Earth and Planetary Sciences
- Physica B

(b) Memberships

- Life membership of American Nano Society (ANS): ID 116008/2011
- Life membership of Indian Association of Physics Teachers (IAPT): ID 8247 L-4825
- Life membership of Indian Science Congress Association (ISCA): ID L13644/2008
- Life membership of Rajasthan Physics Association (RPA): ID LM 110/11/08
- Member of editorial board of International Journal of Current Science & Technology

Academic/Administrative assignments

- Member, Project (B.Tech. CS/EC/IT) placement cell of Apaji Institute, Banasthali University in 2009-2010.
- Co-ordinator, Summer Training activity of M.Sc. (Physics) II Semester at Banasthali University from 2008-09 to 2011-12.
- Seminar Coordinator, M.Sc. (Physics) III Semester at Banasthali from 2007-08 to 2010-11.
- Member, Board of Studies in Physics, Banasthali University, Banasthali (2005-2010).
- Member, Committee of Courses in Physics, Senior Secondary School, Banasthali University, Banasthali (2006-2007, 2008-09)
- Member, Technical Committee in DST funded project (Centre for Education and Research in Basic Sciences) at Banasthali University in 2009-10.
- During (2004-2012), developed various UG and PG laboratories like Laser Physics, Solid state Physics, Spectroscopy, Nuclear Physics etc at Banasthali University.
- Presented the activities of Physics Department in front of UGC Review Committee came to Banasthali University to review the functioning of Banasthali University on 18-20 December, 2009.
- Served in the various committees during NAAC visit at Banasthali University from 13-17 November, 2011.
- Served in the various committees during UGC 12B visit at University of Kota, Kota from 26-27 September, 2012.
- Member, Placement & Counseling cell of University of Kota, Kota from 2012-14.
- Served in various committees in prize distribution ceremony of winners/runner ups of LAHAR 2013 on 09 April, 2013, University of Kota, Kota.
- Member, Editorial Board of University Prospectus for the session 2013-14.
- Co-Convener, Press and Media Committee of Second Convocation of University of Kota held on 29 June, 2013.
- Member, NAAC Steering Committee, University of Kota, Kota in 2017-18
- Associate Dean, Student's Welfare (ADSW), University of Kota, Kota in 2013-14.
- Member, Committee of Course (COC)-Pure and Applied Physics, University of Kota, Kota
- Member, Anti Ragging Squad, University of Kota, Kota in 2013-14
- Coordinator, Five year Integrated B.Sc-M.Sc (Physics) Course started from July 2013
- Public Relations Officer (PRO), University of Kota, Kota from May 2015.

- Convener, Technical Committee of the Department of Pure and Applied Physics, University of Kota, Kota.
- Member, RUSA proposal committee of University of Kota, Kota in 2015-16.
- Member of the committee constituted for the NCTE visit on 19 January 2016 at University of Kota, Kota for M.P.Ed. Course.
- Member of NAAC-SSR preparation committee, University of Kota, Kota in 2013-14 and 2016-17.
- Incharge / Nodel Officer, Smart Village, University of Kota, Kota from August 2016.
- Convener, Executing Committee for Smart Village, University of Kota, Kota from September 2016.
- Member Secretary, Coordination Committee for Smart Village, University of Kota, Kota from September 2016.
- Member, NIRF proposal / data submission Committee of University of Kota, Kota in 2015-16, 2016-17.
- Member Secretary, Internal Quality Assurance Cell (IQAC), University of Kota, Kota from December 2016.
- Convener, Press and Media Committee of Fourth Convocation of University of Kota held on 20 July, 2017.