

CURRICULUM VITAE



Dr. Gunjan Arora

Assistant Professor
Department of Physics
Mohanlal Sukhadia University, Udaipur (Raj.)
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- **Area of Specialization:** Computational and Experimental Condensed Matter Physics
- **Research Interests:** First-principles studies to determine structural, electronic, magnetic, elastic, thermoelectric and thermodynamic properties of various materials. Compton spectroscopy to study the electronic structure of materials.

RESEARCH WORK AND CONTRIBUTION

➤ *Ph.D. Thesis*

Title: *Compton spectroscopy of some binary alloys and compounds*

Supervisor: **Dr. B. L. Ahuja** (Retd. Prof., Deptt. of Physics, ML Sukhadia University)

Year of Award: **2008**

➤ *Ph.D. Students Registered*

- *Electronic structure study of some advanced materials using Compton spectroscopy and ab-initio computations*

Mr. Deepak Kumar Meena (UGC-CSIR NET-JRF, Registered: 2019)

- *Study of inelastic scattering, electronic, magnetic and optical properties of some metal oxides, halides and hydrides*

Ms. Monika Rani (Registered: 2019)

- *Investigation of structural, dielectric and magnetic properties of transition metal doped perovskites and spinel oxides*

Mr. Sunil Kumawat (CSIR-NET-JRF, Registered: 2021)

- *Study of structural, electronic, magnetic and optical properties of rare-earth and alkali-earth metal based perovskites*

Ms. Anuradha (UGC-CSIR NET-JRF, Registered: 2022)

- Mr. Vishnu Kumar Gurjar (Joined on 13.05.2022)

RESEARCH PROJECTS ONGOING

S. No.	Title	Designation	Duration of project	Total Cost (in lacs)	Funding Agency
1.	Compton spectroscopy and first principles investigations to probe electronic response of functional materials	Principal Investigator	July, 2019 to July, 2021	10	UGC-BSR Research Start-Up-Grant Project, University Grants Commission, New Delhi
2.	Measurement of magnetic Compton profile of spintronics and magnetocaloric materials	Co-Investigator	June, 2020 to 2022	115.6	RUSA-2 MHRD New Delhi

➤ HONOURS AND AWARDS

S. No.	Name of Award	Awarding Agency	Year
1	University Gold Medal	Mohanlal Sukhadia University, Udaipur	2001
2	NET	UGC-CSIR, New Delhi	2003
3	Best International ORAL Presentation Award	4 th International Science Congress (ISC-2014) organized by International Science Congress Association	2014
4	Best Paper Award	4 th International Conference on Advance Trends in Engineering, Technology and Research (ICATETR-2015) organized by BKIT, Kota	2015
5	Best International ORAL Presentation Award	GITS-MTMI International Conference on Innovations in Science, Technology, Management & Well Being organized by Geetanjali Institute of Technical Studies, Udaipur	2015
6	Best ORAL Presentation Award	VII-Rajasthan Science Congress-2019, A National Conference on “Current Scenario in Science and Technology: Facing the Challenges and Creating Opportunities” during 14-16 October, 2019	2019

CONTRIBUTION IN SCIENTIFIC ACTIVITIES

- **Member**, Organizing Committee, **VII-Rajasthan Science Congress-2019**, A National Conference on “**Current Scenario in Science and Technology: Facing the Challenges and Creating Opportunities**” held at University College of Science, Mohanlal Sukhadia University, Udaipur during 14th-16th October, 2019. Actively involved in **Abstract Technical Committee** and in **Technical Session and poster Committee**.
- **Chaired a Technical Session** in National Conference on “Recent Advancement in Machine & Space Technologies (RAMST-2020)” Aravali Institute of Technical Studies, Udaipur with Space Society of Mechanical Engineers (SSME), ISRO, Ahmedabad 21st-22nd February 2020.
- **Rapporteur of a Technical Session** in VII-Rajasthan Science Congress-2019 University College of Science, Mohanlal Sukhadia University, Udaipur 14th-16th October 2019.

MEMBERSHIP OF SCIENTIFIC ORGANIZATIONS

- Life member of “**Indian Society for Radiation Physics (ISRP)**” Udaipur Chapter.

SPECIALIZED TRAINING AND ORIENTATION COURSES ATTENDED

1. Successfully completed Training cum Certification course on “**Radiation Safety Aspects in the Research Applications of Ionizing Radiation (RA-51)**” organized by Atomic Energy Regulatory Board (AERB), BARC, Mumbai held at CT & CRS, Anushaktinagar, Mumbai-400094 during 08th to 16th July, 2019.
2. Successfully completed **4-week online Induction/Orientation Programme** for “Faculty in Universities/Colleges/Higher Education” organized by Teaching Learning Centre, Ramanujan College, University of Delhi, sponsored by Ministry of Human Resource Development, Pandit Madan Mohan Malviya National Mission on Teachers and Teaching during 4th June, 2020 to 1st July, 2020.
3. Participated in the **virtual 2020 MSSC Summer School** on “**ab initio modelling of crystalline and defective solids with the CRYSTAL code**” organized by the Department of Chemistry and the Thomas Young Centre at **Imperial College London** and the Theoretical Chemistry Group of the **University of Torino**, in collaboration with the Computational Materials Science Group of the **Science and Technology Facilities Council (STFC)** during 21st to 25th September 2020.
4. Attended one-week Short Term Course (STC) in online mode on **Recent Advances in Optical and Magnetic Materials** from 14th to 18th December 2020 jointly organised by Deptt. of Physics, NIT, Uttarakhand and Deptt. of Physics, SLIET, Longowal.
5. Participated in **FDP on “Evolution from Offline to Online Teaching**” organized by IQAC and FDP Committee, Satish Pradhan Dhyan Sadhna College, Thane in association with Department of IT, University of Mumbai and Microsoft during 30th May to 3rd June, 2020.
6. Successfully completed Online **Refresher Course on Physics (SRC)** organized by Centre for Professional Development in Higher Education (CPDHE), University of Delhi, Delhi during 04th to 18th October 2021.

RESEARCH PUBLICATIONS:

➤ *Published Papers in Journals*

1. Electronic structure of some mercury chalcogenides using Compton spectroscopy
Gunjan Arora and B. L. Ahuja
Radiation Physics and Chemistry **77**, 9-17 (2008). (IF=2.9)
2. A study of electron momentum density and charge transfer in W-Cu system
B. L. Ahuja, **G. Arora**, G. Ahmed, A. Rathor, V. Sharma, K. Kadas and R. Ahuja
Journal of Alloys and Compounds **467**, 595-599 (2009). (IF=6.2)
3. Electronic structure of transition metal dichalcogenides WX_2 (X = S and Se)
Using Compton spectroscopy: Theory and experiment
Gunjan Arora, Yamini Sharma, Vinit Sharma, Gulzar Ahmed, S. K. Srivastava and
B. L. Ahuja
Journal of Alloys and Compounds **470**, 452-460 (2009). (IF=6.2)
4. Band-structure calculations and electron momentum densities of AgCl and AgBr
A. Rathor, **G. Arora** and B. L. Ahuja
Physica Status Solidi (b) **245** (8) 1563-1570 (2008). (IF=1.782)
5. Electron momentum density and band structure calculations of α - and β -GeTe
Laxman Vadkhiya, **Gunjan Arora**, Ashish Rathor, B.L. Ahuja
Radiation Physics and Chemistry **80**, 1316–1322 (2011). (IF=2.9)
6. Nature of bonding in $CaTiO_3$ and $SrTiO_3$: A Compton scattering study
K. C. Bhamu, Alpa Dashora, **Gunjan Arora** and B. L. Ahuja
Radiation Physics and Chemistry **81**, 728-734 (2012). (IF=2.9)
7. Electronic structure of lanthanum sesquioxide: A Compton scattering study
Sonu Sharma, Jagrati Sahariya, **Gunjan Arora** and B. L. Ahuja
Physica B: Condensed Matter **450**, 25–29 (2014). (IF=2.8)
8. Electronic and cohesive properties of GaN
G. Arora, H.S. Mund, V. Sharma, N. L. Heda and B. L. Ahuja
Indian Journal of Pure and Applied Physics **53**, 328-334 (2015). (IF=0.739)
9. High energy Compton spectroscopy and electronic structure of Laves phase $ZrFe_2$
Samir Bhatt, Kishor Kumar, **Gunjan Arora**, Komal Bapna and B. L. Ahuja
Radiation Physics and Chemistry **125**, 109–114 (2016). (IF=2.9)
10. Electron momentum density and band structure calculations of Dy_2O_3
Gagan Ahuja, Sonu Sharma and **Gunjan Arora**
Indian Journal of Pure and Applied Physics **55**, 589-594 (2017). (IF=0.822)
11. Magnetic properties and spin momentum densities of Ni-excess Ni-Mn-Sn Heusler alloys
A. Dashora, J. Sahariya, H.S. Mund, M.D. Mukadam, S.M. Yusuf, M. Itou, Y. Sakurai, **G. Arora** and B.L. Ahuja
Journal of Magnetism and Magnetic Materials **484**, 1-7 (2019). (IF=2.7)

12. Performance of hybrid exchange-correlation potential for photocatalytic silver chromate and molybdate: LCAO theory and Compton spectroscopy
Seema Kumari Meena, N.L. Heda, **Gunjan Arora**, Lekhraj Meena and B.L. Ahuja
Physica B: Condensed Matter **560**, 236-243 (2019). (IF=2.8)
13. Electronic response of hydrogen storage intermetallics LaNi_5 and $\text{LaNi}_{4.5}\text{Co}_{0.5}$: Inelastic scattering experiment and *ab-initio* calculations
Gunjan Arora, Lekhraj Meena, Khushboo Sharma, Kishor Kumar and B. L. Ahuja
Physica Scripta **95**, 045813-1-045813-13 (2020). (IF=2.9)
14. Electronic structure of tantalum dichalcogenide using Compton scattering technique and density functional theory
Deepika Mali, Kishor Kumar, Pawan K. Jangid, **Gunjan Arora** and B. L. Ahuja
Radiation Physics and Chemistry **182**, 109379 (2021). (IF=2.9)
15. Validation of hybrid WC1LYP functional for ferroelectric LiNbO_3 and LiTaO_3 using Compton spectroscopy and first-principles computations
P. K. Joshi, K. Kumar, D. Mali, **G. Arora**, L. Meena, B. L. Ahuja
Materials Today Communications **31**, 103288 (2022). (IF=3.8)
16. Electronic and optical responses, Compton spectroscopy and manifestation of trapping centres of LiF: Mg, Ti
P. K. Jangid, K. Kumar, **G. Arora**, B. L. Ahuja
Physica B: Condensed Matter **639**, 413919 (2022). (IF=2.8)
17. High energy Compton scattering, electronic structure and optical response of zirconium substituted lead titanate
P. K. Joshi, D. Mali, K. Kumar, **G. Arora**, N. L. Heda, B. L. Ahuja
Radiation Physics and Chemistry **199**, 110294 (2022). (IF=2.9)
18. Experimental and theoretical divulging of electronic structure and optical properties of Zn-doped SnSe thermoelectric materials
K. Singh, P. Dubey, P. K. Joshi, K. Kumar, B. L. Choudhary, **G. Arora**, B. L. Ahuja, S. K. Mishra
Materials Science in Semiconductor Processing **156**, 107301 (2023). (IF=4.1)
19. Inelastic scattering and first principles study of tritium breeder materials Li_2TiO_3 and Li_2ZrO_3
D. K. Meena, S. Kumawat, V. Jain, **G. Arora**
Radiation Physics and Chemistry **203**, 110630 (2023). (IF=4.1)
20. Pressure dependent electronic, spintronic, optical and mechanical properties of equiatomic quaternary Heusler alloys NbMnVAl and NbFeCrAl
D. K. Meena, S. Kumawat, V. Jain, K. Kabra, **G. Arora**
Physica B: Condensed Matter **657**, 414787 (2023). (IF=2.8)
21. Compton spectroscopy of hydrogen storage material LiAlH_4 : Experiment and DFT strategies
M. Rani, K. Kumar, S. Kumawat, A. Soni, J. Sahariya, **G. Arora**, B. L. Ahuja
Materials Today Communications **35**, 106017 (2023). (IF=3.8)

22. Ab-Initio Calculations of Structural, Optoelectronic, Thermoelectric, and Thermodynamic Properties of Mixed-Halide Perovskites $\text{RbPbBr}_{3-x}\text{I}_x$ ($x=0$ to 3): Applicable in Renewable Energy Devices
M. Rani, P. K. Kamlesh, S. Kumawat, U. Rani, **G. Arora**, A. S. Verma
ECS Journal of Solid State Science and Technology **12** (8), 083006 (2023). (IF=2.2)

➤ *Full Papers in Conference Proceedings*

23. Characterization of electronic properties of WSe_2 using Compton spectroscopy
Gunjan Arora, Yamini Sharma, Gulzar Ahmed and B. L. Ahuja
Proceedings, 22nd Indian Engineering Congress pp. 304-307 (2007).
24. Electronic structure of WSe_2
Gunjan Arora, Yamini Sharma and B. L. Ahuja
Solid State Physics (India) **52**, 715-716 (2007).
Proceedings of the DAE Solid State Physics Symposium (2007).
25. Compton spectroscopy of some binary alloys and compounds
Gunjan Arora (Thesis presentation: supervised by Prof. B.L. Ahuja)
Proceedings of DAE Solid State Physics Symposium **53**, 117-118 (2008).
26. Compton scattering and electronic properties of tungsten ditelluride
Gunjan Arora and B. L. Ahuja
Solid State Phenomena **209**, 107-110 (2014). (ISSN: 1662-9779)
27. Study of Electronic Properties of Dy_2O_3 using First Principles Calculations
G. Ahuja and **G. Arora**
Int. J. Pure Appl. Phys. **13** (1), 123-126 (2017). (ISSN: 0973-1776)
28. Compton Spectroscopy and Electronic Structure of Thermoluminescent Lithium Tetraborate
P. K. Jangid, Kishor Kumar, **Gunjan Arora**, B. L. Ahuja
AIP Conference Proceedings **2265** (1), 030345 (2020).
Presented in 64th DAE Solid State Physics Symposium organized by IIT, Jodhpur from 18-22 December, 2019.
29. Compton Spectroscopy to Study Electronic Response of Orthorhombic Potassium Niobate
Pooja K. Joshi, Kishor Kumar, Deepika Mali, **Gunjan Arora**, B. L. Ahuja
AIP Conference Proceedings **2265** (1), 030343 (2020).
Presented in 64th DAE Solid State Physics Symposium organized by IIT, Jodhpur from 18-22 December, 2019.
30. Electronic structure calculations of some Cr based spintronic half Heusler alloys
Deepak Kumar Meena and **Gunjan Arora**
Journal of Physics: Conference Series **1504**, 012010 (2020).
Presented in National Conference on Recent Advancement in Physical Sciences (NCRAPS-2019) organized by National Institute of Technology, Uttarakhand from 19-20 December, 2019.

31. Electronic properties of Lithium tantalate using Compton spectroscopy.
Pooja K. Joshi, **Gunjan Arora**, Deepika Mali, Pawan K. Jangid, Kishor Kumar, and B.L. Ahuja
Journal of Physics: Conference Series **1504** (1), 012015 (2020).
Presented in National Conference on Recent Advancement in Physical Sciences (NCRAPS-2019) organized by National Institute of Technology, Uttarakhand from 19-20 December, 2019.
32. First-principles calculations to probe electronic response of Lithium tetraborate
Pawan K. Jangid, **Gunjan Arora**, Deepika Mali, Pooja K. Joshi, Kishor Kumar and B.L. Ahuja
Journal of Physics: Conference Series **1504** (1), 012017 (2020)
Presented in National Conference on Recent Advancement in Physical Sciences (NCRAPS-2019) organized by National Institute of Technology, Uttarakhand from 19-20 December, 2019.
33. Study of KCaF_3 and CsCaF_3 Using Hybrids Density Functionals
G. Arora, M. Sharma
Materials Today: Proceedings **29**, 267 (2020).
34. First-principles investigations of electronic and magnetic properties of $\text{Fe}_2\text{V}_{1-x}\text{Cr}_x\text{Si}$ Heusler alloys
Pooja Kumari Joshi, Kishor Kumar, **Gunjan Arora**, Deepika Mali, Pawan K. Jangid and B.L. Ahuja
Journals of Physics: Conference Series, **1849**, 012030 (2021).
Presented in 2nd National Conference on Recent Advancement in Physical Sciences (NCRAPS-2020) jointly organized by Department of Chemistry, Department of Physics & Department of Mathematics, National Institute of Technology, Uttarakhand from 19-20 December, 2020.
35. Influence of Te doping in titanium dichalcogenides: LCAO calculations and Compton spectroscopy.
Deepika Mali, Kishor Kumar, Pawan K. Jangid, Pooja K. Joshi, **Gunjan Arora** and B. L. Ahuja
Journals of Physics: Conference Series, **1849**, 012031 (2021).
Presented in 2nd National Conference on Recent Advancement in Physical Sciences (NCRAPS-2020) jointly organized by Department of Chemistry, Department of Physics & Department of Mathematics, National Institute of Technology, Uttarakhand from 19-20 December, 2020.
36. Electronic and elastic properties of ternary fluoro-perovskite RbCaF_3
Gunjan Arora, Gagan Ahuja and Ushma Ahuja
Journals of Physics: Conference Series, **1849**, 012032 (2021).
Presented in 2nd National Conference on Recent Advancement in Physical Sciences (NCRAPS-2020) jointly organized by Department of Chemistry, Department of Physics & Department of Mathematics, National Institute of Technology, Uttarakhand from 19-20 December, 2020.
37. Electronic properties of vanadium pentoxide by inelastic scattering method
Gunjan Arora, Pooja K. Joshi, Kishor Kumar and B. L. Ahuja

AIP Conference Proceedings **2352** (1), 020063 (2021).
Presented in 5th National e-Conference on Advanced Materials and Radiation
Physics organized by Department of Physics, Sant Longowal Institute of
Engineering and Technology, Longowal, Punjab from 9-11 November, 2020.

38. Electronic properties of monoclinic phase of niobium pentoxide
Monika Rani, Pooja K. Joshi, Deepika Mali, Kishor Kumar, Lekhraj Meena, **Gunjan Arora**, B. L. Choudhary, B. L. Ahuja
AIP Conference Proceedings 2728 (1) 040007 (2023).
Presented in 3rd National Conference on Recent Advancement in Physical Sciences (NCRAPS-2021) jointly organized by Department of Chemistry, Department of Physics & Department of Mathematics, National Institute of Technology, Uttarakhand from 19-20 December, 2021.
39. Magnetic Compton profile of rare earth doped nickel ferrite
Pooja K. Joshi, K. Kumar, **G. Arora**, A. Dashora, Y. Sakurai, H. Sakurai, N. Tsuji, N. L. Heda, L. Meena, B. L. Choudhary, B. L. Ahuja
AIP Conference Proceedings 2728 (1) 040005 (2023).
Presented in 3rd National Conference on Recent Advancement in Physical Sciences (NCRAPS-2021) jointly organized by Department of Chemistry, Department of Physics & Department of Mathematics, National Institute of Technology, Uttarakhand from 19-20 December, 2021.
40. On the choice of exchange and correlation potentials among various hybrid and GGA potentials in deducing momentum densities of magnetocaloric La-Ni-Co system
Lekhraj Meena, S. K. Meena, G. Arora, N. L. Heda, K. Kumar, B. L. Ahuja
AIP Conference Proceedings 2728 (1) 040007 (2023).
Presented in 3rd National Conference on Recent Advancement in Physical Sciences (NCRAPS-2021) jointly organized by Department of Chemistry, Department of Physics & Department of Mathematics, National Institute of Technology, Uttarakhand from 19-20 December, 2021.

➤ *Oral/poster presentation in National & International conferences:*

1. Compton profile study of some mercury chalcogenides
Gunjan Arora and B. L. Ahuja
Presented in **International Conference on Condensed Matter Physics ‘ICCMP-2007’** (2007) at Rajasthan University, Jaipur.
2. Compton scattering study of HgBr₂ and HgI₂
G. Ahmed, Y. Sharma, M. Sharma, S. Tiwari, H. S. Mund, J. Saharia, **G. Arora**, R. Jain, H. Malhotra and B. L. Ahuja
Presented in **18th National Symposium on Radiation Physics, 2009** (NSRP-18) organized by MohanLal Sukhadia University, Udaipur (Raj.).
3. Compton Profile and Band Structure of α -GeTe
Gunjan Arora, Laxman Vadkhiya and B.L.Ahuja
Presented in the **National Conference on Functional Materials (NCFM-2011)** 12-13, Feb., 2011.

4. Band structure and electronic properties of transition metal chalcogenide WTe_2
G. Arora and B.L. Ahuja
Proceedings, **19th ISCB International Conference (ISCBC-2013)** pp. 199 (2013)
at M.L. Sukhadia Univ., Udaipur.
5. A Compton profile study of bonding in tin chalcogenides
V. Raykar, **G. Arora**, G. Choudhary and B.L. Ahuja
Proceedings, **19th ISCB International Conference (ISCBC-2013)** pp. 165 (2013)
At M.L. Sukhadia Univ., Udaipur.
6. A DFT Approach to Study Electronic Properties of Matlockite Compounds
Gagan Ahuja and **Gunjan Arora**
Presented in **National Conference on Material Science (NCMS-2014)** 17-18
Oct., 2014 at Mewar University, Chittorgarh.
7. Application of CIGS chalcopyrite semiconductors in solar cells
Vishnu Agarwal, **Gunjan Arora** and Sudhir Jain
Proceedings, Processing and Fabrication of Advanced Materials: XXII Volume 2,
1194-1198 (2014) during Dec. 5-7, 2014 at Indian Institute of Technology Roorkee,
Uttarakhand, India.
8. Electronic and Elastic Properties of PbFCl-type compounds: A First Principles
Study
Gunjan Arora and B. L. Ahuja
Presented in the **4th International Science Congress (ISC-2014)** organized by
International Science Congress Association from 8th – 9th December 2014.
(Best International ORAL Presentation Award)
9. Study of Electronic Properties of PbFX (X=Cl, Br and I)
Gunjan Arora
Presented in the **4th International Conference on Advance Trends in
Engineering, Technology and Research (ICATETR-2015)** organized by BKIT,
Kota during June, 19-20, 2015. **(Best Paper Award)**
10. PBEsol Approximation to study Electronic Properties of $CsCaF_3$
Manisha Sharma and **Gunjan Arora**
Proceedings, **5th International Conference on “Advance Trends in Engineering,
Technology and Research” (ICATETR-2015)**, 141-143 (2015) during Dec. 23-24,
2015 at BKIT, Kota.
11. Structural and Elastic Properties of KLiS: A First Principles Study
Gunjan Arora
Presented in the **2015 GITS-MTMI International Conference on Innovations in
Science, Technology, Management & Well Being** organized by Geetanjali
Institute of Technical Studies, Udaipur during Dec., 27-29, 2015.
(Best International ORAL Presentation Award)
12. Electronic properties of CaFCl and CaFBr using ab initio studies
Manisha Sharma and **Gunjan Arora**
Presented in the **2015 GITS-MTMI International Conference on Innovations in**

- Science, Technology, Management & Well Being** organized by Geetanjali Institute of Technical Studies, Udaipur during Dec., 27-29, 2015.
13. A Compton profile study of millerite nickel sulphide
G. Ahuja and **G. Arora**
Presented in the **2015 GITS-MTMI International Conference on Innovations in Science, Technology, Management & Well Being** organized by Geetanjali Institute of Technical Studies, Udaipur during Dec., 27-29, 2015.
 14. Electronic Structure and Compton profiles of Sc_2O_3
Sonu Sharma, N.L. Heda, K.K. Suthar, Samir Bhatt, **Gunjan Arora** and B. L. Ahuja
Presented in the **2015 GITS-MTMI International Conference on Innovations in Science, Technology, Management & Well Being** organized by Geetanjali Institute of Technical Studies, Udaipur during Dec., 27-29, 2015.
 15. Structural Study of BaFCl using LCAO approach
Manisha Sharma and **Gunjan Arora**
Presented in the **3rd Rajasthan Science Congress** from February 28th –March 2nd, 2015 organized by Manipal University Jaipur.
 16. Electronic Properties of KCaF_3 using Local Density Approximation
G. Arora and M. Sharma
Presented in the National conference on “**Advanced Functional Materials and Their Applications (AFMA-2015)**” held on **Dec. 11-12, 2015**, under TEQIP-II at Govt. Women Engineering College, Ajmer (Raj.).
 17. Elastic and Electronic Properties of KLiSe
M. Sharma and G. Arora
Presented in the “**National Conference on Advanced Functional Materials & Their Applications**” (AFMA-2015) held on 11-12 Dec. 2015 with ISBN No. 978-81-7233-976-0 in Govt. Women Engineering College, Ajmer.
 18. A Density Functional Approach to study Alkali Metal Chalcogenides
Manisha Sharma and **Gunjan Arora**
Presented in the **International Conference on Eco-Smart Sustainable Development in Engineering Technology and Management (ESDETM-2018)** organized by Geetanjali Institute of Technical Studies, Udaipur during June, 29-30, 2018.
 19. Electronic Band Structure of Solar Cell Material by Range Separated Hybrid Theory
Gunjan Arora
Presented in the **International Conference on Eco-Smart Sustainable Development in Engineering Technology and Management (ESDETM-2018)** organized by Geetanjali Institute of Technical Studies, Udaipur during June, 29-30, 2018.
 20. Electronic properties of LaNi_5 : Compton scattering and DFT studies
G. Arora, K. Sharma, K.K. Suthar and B. L. Ahuja

Presented in **National Research Scholar Meet on Condensed Matter Physics and Material Science (CMPMS-18)** organised by Deptt. Of Physics, Gujarat University, Ahmedabad and Gujarat Science Academy, Ahmedabad on 8th Dec., 2018.

21. Role of range separated hybrid density functional in predicting electronic response of $\text{LaNi}_{4.5}\text{Co}_{0.5}$
Gunjan Arora and B.L. Ahuja
Presented in **VII-Rajasthan Science Congress-2019**, A National Conference on “Current Scenario in Science and Technology: Facing the Challenges and Creating Opportunities” organized by University College of Science, Mohanlal Sukhadia University, Udaipur during 14-16 October, 2019.
(Prof. S. Paroda Best Presentation Award)
22. Ab-initio study of electronic properties of sylvanite compound Cu_3VS_4
Gunjan Arora, Lekhraj Meena, R. Jain, and B.L. Ahuja
Presented in **VII-Rajasthan Science Congress-2019**, A National Conference on “Current Scenario in Science and Technology: Facing the Challenges and Creating Opportunities” organized by University College of Science, Mohanlal Sukhadia University, Udaipur during 14-16 October, 2019.
23. Electronic structure of thermoluminescent lithium tetraborate
Pawan Kumar Jangid, Kishor Kumar, **Gunjan Arora** and B. L. Ahuja
Presented in **VII-Rajasthan Science Congress-2019**, A National Conference on “Current Scenario in Science and Technology: Facing the Challenges and Creating Opportunities” organized by University College of Science, Mohanlal Sukhadia University, Udaipur during 14-16 October, 2019.
24. Electronic response of semiconductor ZrSTe using momentum densities: Theory and experiment
Deepika Mali, Kishor Kumar, **Gunjan Arora**, A. R. Jani, and B. L. Ahuja
Presented in **VII-Rajasthan Science Congress-2019**, A National Conference on “Current Scenario in Science and Technology: Facing the Challenges and Creating Opportunities” organized by University College of Science, Mohanlal Sukhadia University, Udaipur during 14-16 October, 2019.
25. Electron momentum density and Fermi surface structures of NiSe.
Gunja Arora and B.L. Ahuja
Presented in **National Conference on Recent Advancement in Physical Sciences (NCRAPS-2019)** organized by National Institute of Technology, Uttarakhand from 19-20 December, 2019.
26. Electronic Structure Study of PbTiO_3 using Compton Spectroscopy
Pooja Kumari Joshi, Deepika Mali, **Gunjan Arora**, Kishor Kumar and B. L. Ahuja
Presented in the **International Conference on Recent Trends In Advanced Materials (ICRTAM-2021)** organized by Deptt. of Physics, Mohanlal Sukhadia University, Udaipur on 15th July, 2021.
27. Electron Momentum Densities of Photovoltaic ZrSTe using First Principle Calculations and Compton Spectroscopy

Deepika Mali, Pooja K. Joshi, Kishor Kumar, **Gunjan Arora**, Lekhraj Meena and B. L. Ahuja
Presented in the **International Conference on Recent Trends In Advanced Materials (ICRTAM-2021)** organized by Deptt. of Physics, Mohanlal Sukhadia University, Udaipur on 15th July, 2021.

28. Spin Momentum Density in Pr Doped Nickel Ferrite using Magnetic Compton Scattering
G. Arora, K. Kumar, A. Dashora, Y. Sakurai, H. Sakurai, N. Tsuji, N.L. Heda, B. L. Ahuja
Presented in **Material Research Meeting 2021 (MRM2021)** organized by Materials Research Society of Japan (MRS-Japan) during 13-17, December 2021.

➤ **BOOKS PUBLISHED**

1. **RTU Engineering Physics-I**, RBD Publications, Jaipur, ISBN: 978-81-8142-460-0
2. **RTU Engineering Physics-II (with Engineering Physics Lab-II)**, RBD Publications, Jaipur, ISBN: 978-81-8182-480-6
3. **Engineering Physics-I**, Himanshu Publications, Udaipur, ISBN: 978-81-7906-192-3
4. **Engineering Physics-II**, Himanshu Publications, Udaipur, ISBN: 978-81-7906-222-7
5. **Elements of Material Science**, Himanshu Publications, Udaipur, ISBN: 978-81-7906-506-8
6. **Introduction to Electrodynamics**, Himanshu Publications, Udaipur, ISBN: 978-81-7906-507-5
7. **Engineering Physics Practical**, Himanshu Publications, Udaipur, ISBN: 978-81-7906-508-2

➤ **EXTENSION LECTURE / INVITED TALK DELIVERED**

1. A tool to verify electronic structure calculations: Theoretical and experimental Compton profiles
Delivered **Invited Talk in International Workshop on Modeling of Materials (CRYSTAL Program)** conducted by Bundelkhand University, Jhansi, India in collaboration with Università di Torino, Torino, Italy and Michigan Technological University, Houghton, USA during 7-12 March, 2014.
2. Role of *ab-initio* studies in defining electronic properties of alkali and transition metal Chalcogenides
Delivered an invited talk in **National Conference on Material Science (NCMS-2014)** On 17-18, Oct., 2014 at Mewar University, Chittorgarh.
3. Overview of Radioactivity
Delivered a Lecture in one day workshop on “**Public Awareness on Radiation**” organised by Department of Physics, University College of Science, Mohan Lal Sukhadia University, Udaipur on March 22, 2011.

4. Experiments with Light
Delivered an invited talk in **Kendriya Vidhyala Sangthan Regional Science Exhibit**
On 16, Dec., 2015 at Kendriya Vidhyala-2, Eklinggarh, Udaipur.
5. कॉम्पटन प्रकीर्णन विधि द्वारा कुछ तकनीकी रूप से महत्वपूर्ण यौगिकों का अध्ययन
वैज्ञानिक तथा तकनीकी शब्दावली आयोग, मानव संसाधन विकास मंत्रालय, उच्चतर शिक्षा विभाग, नई दिल्ली द्वारा आयोजित राष्ट्रीय संगोष्ठी “पदार्थ विज्ञान और अभिकलनात्मक अनुसंधान में वर्तमान विकास: विज्ञान में तकनीकी हिंदी शब्दावली का प्रयोग” में दिनांक 22-23 फरवरी 2019 को मेवाड़ विश्वविद्यालय चित्तौड़गढ़ में व्याख्यान दिया।
6. Delivered an **Invited talk** in Refresher course for School lecturers of Kendriya Vidhyalaya Sangthan, held at Kendriya Vidhyalaya No.-2, Udaipur on “**Compton scattering: A tool to probe electronic properties of compounds**” on 9th June, 2019.
7. Delivered an **Invited talk** in Refresher course for In-Service PGT Physics lecturers of Kendriya Vidhyalaya Sangthan, held at Kendriya Vidhyalaya No.-2, Udaipur on “**Physics of Oscillations and Waves**” on 31st Dec., 2019.