

# CURRICULUM VITAE

## BHOOPENDRA KUMAR DEWANGAN

Assistant Professor, Department of Physics  
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### Research Interests:

Condensed matter physics, Density Functional Theory, electronic band structure, Density of States (DOS), optical, phonon frequency, elastic properties, thermodynamics, and thermoelectric properties of Heusler Compounds.

### Professional Experience:

1. Assistant Professor (06.06.2024 – till date) Govt. Madanlal Shukla PG College Seepat, District – Bilaspur (C.G.).
2. Assistant Professor (17.03.2022 – 06.06.2024) Govt. Naveen College Sakri, District – Bilaspur (C.G.).

### Academic Qualifications:

Examination	University/Board	Year	Percentage
Ph.D. Research	National Institute of Technology, Raipur	Pursuing	
Pre-Ph.D. Course Work	National Institute of Technology, Raipur	Jan 2022	8.00 CGPA
M.Sc. (Physics)	Guru Ghasidas Vishwavidyalaya, Bilaspur	2018	79.83 %
B.Sc. Hon's (Physics)	Guru Ghasidas Vishwavidyalaya, Bilaspur	2016	88.23 %
Higher Secondary School	Chhattisgarh Board of Secondary Education, Raipur	2013	91.00 %

### Achievements / Awards:

- 1) Qualified Graduate Aptitude Test in Engineering (GATE) - 2020, 2021 and 2022.
- 2) Qualified Chhattisgarh State Eligibility Test (CGSET) – 2018 and 2019.
- 3) DST-INSPIRE Scholarship (2013-2018) under the scheme of 'Scholarship for Higher Education (SHE)' by the DST, Govt. of India, New Delhi.

## Publications (SCI/SCOPUS, Year wise in descending order)

1. **Bhoopendra Kumar Dewangan**, Sapan Mohan Saini, “Investigation of Structural, Electronic and Optical Properties of Quaternary Heusler LiTiRhSn Compound” *Journal of Physics: Conf. Series*, 3136, 012017 (2025).
2. **Bhoopendra Kumar Dewangan**, Sapan Mohan Saini, “Comparative Study of Optoelectronic and Thermoelectric Performance of Quaternary Heusler LiHfRhZ (Z= Si, Ge) Alloys for Energy Harvesting Applications” *Physica Status Solidi B*, 2500232 (2025).
3. **Bhoopendra Kumar Dewangan**, Lokanksha Suktel, Sapan Mohan Saini, “Ab Initio Study of Quaternary Heusler LiTiRhZ (Z = Si, Ge, Sn) Compounds for Thermoelectric Application” *International Journal of Quantum Chemistry*, 145, 70067 (2025)
4. **Bhoopendra Kumar Dewangan**, Sapan Mohan Saini, “First Principles Study of Electronic Structure and Optical Properties of Quaternary Heusler LiHfCoGe Compound” *Procedia Environmental Science, Engineering and Management*, 10, 1, (2023).

## Papers Presented in National/International Conferences:

1. Electronic Structure, Phonon Dynamic, Mechanical Stability and Optical Properties of Quaternary Heusler TaSiFeMn Alloy: A DFT Study in the **1<sup>st</sup> National Conference on Quantum Materials and Devices (NCQMD-2026)** organized by Dept. of Physics, National Institute of Technology Raipur during March 12-13, 2026.
2. Electronic Structure, Phonon Dynamic, Mechanical Stability, and Optical Properties of Quaternary Heusler TaAlCoMn Alloy for Optoelectronic Applications in **National Conference on Advances in Condensed Matter Physics (ACMP-2026)** organized by Dept. of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya Bilaspur, during February 20-21, 2026.
3. Exploring the Electronic and Phonon Properties of Quaternary Heusler Alloy TaAlCoCu: A First Principles Approach” in National Conference on **Applications of Nanophotonics and Advanced Materials Instrumentation (ANAMI-2025)** organized by Dept. of Physics, Govt. Dungar College, Bikaner during September 26-27, 2025
4. “Exploring TaAlCoCu Quaternary Heusler Alloy for Energy-Efficient Optoelectronics: A Step Towards Scientific Solutions for Rural Development” in One Day Multi-Disciplinary International Seminar on **Social and Scientific Approaches for Resilient Rural Development and India’s Path towards Viksit Bharat @2047** organized by Govt. Lal Chakradhar Shah PG College Ambagarh Chowki (C.G.) On September 13, 2025.
5. “First Principles Investigation of Structural, Electronic and Optical properties of Quaternary Heusler LiTiRhSi Compound” in **International Conference on Materials**

- and Applied Science for Society (MASS)** organized by Anand Niketan College of Science, Arts and Commerce, Anandwan, Warora (MH) during December 30-21, 2024.
6. "Electronic structure and optical properties of quaternary Heusler compound LiTiRhGe: first principles study" in **Second International Conference on Recent Trends in Applied Physics & Material Science (RAM 2024)** organized by Bikaner Technical University, Bikaner, Rajasthan during November 15-16, 2024
  7. "A Theoretical Study of Electronic Structure and Optical Properties of Quaternary Heusler Compound LiHfRhGe" in **International Conference on Emerging Materials and Quantum Photonics (ICEMQP-2024)** organized by Department of Physics, Guru Jambheshwar University of Science & Technology, Hisar (Haryana) during November 7-9, 2024.
  8. "Investigation of Structural, Electronic and Optical Properties of Quaternary Heusler LiTiRhSn Compound" in the **3rd International Conference on Functional Material and Applied Physics (FMAP-2024)** organized by Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat during October 18-19, 2024.
  9. Investigation of Electronic Structure, Optical Properties and Phonon Frequency of Quaternary Heusler Compound LiTiCoSn in **National Conference on Recent Technologies & Innovations in Electronics and Photonics – 2024** organized by MIT World Peace University and Dept. of Scientific and Industrial Research during February 9-10, 2024
  10. Investigation of Electronic Structure and Phonon Frequency of Quaternary Heusler Compound LiTiCoSn in **4<sup>th</sup> International Conference on Condensed Matter and Applied Physics** organized by Govt. Engineering College, Bikaner and Condensed Matter Society during October 9-10, 2023.
  11. "*Ab initio* study of electronic structure and optical properties of novel quaternary Heusler compound LiHfCoSn" in **National Seminal on Recent Trends in Chemical Sciences: An Interdisciplinary Research Area in Physical, Biological and Environmental Sciences** organized by Department of Chemistry, Govt. Bilasa Girls' P.G. College, Bilaspur (C.G.) on March 1-2, 2023.
  12. "Investigation of Structural, Electronic and Optical Properties of LiHfCoZ (Z = Ge, Sn) Quaternary Heusler Compounds: First Principles Study" in **1<sup>st</sup> International Conference on Smart Materials and Applications 2022 (SMA-2022)** at NIT Raipur (25-26 March 2022).
  13. "First Principles Study of Electronic Structure and Optical Properties of Ternary GdNiBi Half Heusler Compound" in **3rd National Conference on Advanced Materials and Applications 2021 (NCAMA-2021)** at NIT Raipur (25-26 November 2021).

**Workshop/Training Attended:**

- 1) National Workshop on **Advanced Semiconductor Materials and Devices Technology (ASMDT-2026)** organized by Dept. of Physics and Astronomy, NIT Raurkela during February 2-3, 2026.
- 2) International Webinar on **Innovation in Nano Technology** organized by Dept. of Chemistry, LCIT College of Commerce and Science, Bilaspur (C.G.) on April 25, 2025.
- 3) Workshop on **Research: Why, What & How** organized by Dept. of Chemistry, Govt. Rajiv Lochan PG College Rajim (C.G) on April 17, 2025.
- 4) International Webinar on **Rotating Nuclei and Other Objects** organized by Dept. of Physics, Akal University, Talwandi Sabo, Bathinda, Punjab on March 16, 2025.
- 5) Workshop on **Impact of Science in Daily Life Observation** organized by Govt. GSG PG College Balod (C.G.) during March 3-4, 2025.
- 6) Workshop on **Fiber Optic Sensors and its Applications (WFOSA) – 2024** organized by Department of Electronics Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad during December 6-7, 2024.
- 7) Awareness Workshop of UGC-DAE CSR on Utilization of in-house and large scale DAE Facilities hosted by Department of Physics & Astrophysics, Central University of Haryana, Manendragarh on August 22, 2024.
- 8) Hands-on training workshop on **Nanomaterial and Nanoelectronics devices modeling and simulation using NANODCAL & RESCU Software** from Nanoacademic Technology during July 29-30, 2024.
- 9) **IP Awareness/Training Program** under the National Intellectual Property Awareness Mission organized by Intellectual Property Office, Govt. of India on September 22, 2023.
- 10) **NEP 2020: E-Content Development & Delivery** organized by UGC-HRDC Jai Narain Vyas University Jodhpur, Rajasthan on September 16, 2023.
- 11) **RemoteXS User Orientation and Training Session** in association with National Institute of Technology Raipur held on September 6, 2023.
- 12) Webinar on **Implementation of NEP-2020 for University and College Teachers** jointly organized by Maharaja Agrasen University, Baddi and V.A.B. Govt. College Chhuikhadan, Durg University on April 27, 2023.
- 13) One Day Orientation on **NAAC Assessment and Evaluation** organized by Department of Higher Education, Govt. of C.G. on February 17, 2023.
- 14) Two days' workshop on **Research Proposal Writing** organized by Indian Knowledge System, Ministry of Education, Govt. of India and Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh on February 03-04, 2023.
- 15) One Day State Level Workshop on **How to Write Research Paper** organized by IQAC, Govt. Bilasa Girls' P.G. College, Bilaspur (C.G.) on January 07, 2023.

- 16) **Advanced Characterization Techniques for Chemical Scaffold (STUTI-ACTCS-2022)** organized by NIT Warangal and GNDU, Amritsar during September 21-27, 2022 at GNDU, Amritsar.
- 17) **IP Awareness/Training Program** under the National Intellectual Property Awareness Mission organized by Intellectual Property Office, Govt. of India. (June 01, 2022).
- 18) **Advanced Characterization Tools: Fundamentals and Applications** organized by Dept. of Physics, Pt. Shyamacharan Shukla College Dharsiwa, Raipur and Dept. of Physics, C.V. Raman Global University, Bhubaneswar. (May 16-21, 2022).
- 19) **National Education Policy-2020: Opportunities in Research and Innovation** organized by School of Physical Sciences, Jawaharlal Nehru University, New Delhi (March 31, 2021).
- 20) **Skill Development Training on Material Characterization Techniques** jointly organized by School of Physical Sciences and Skill Development Cell, GGV (A Central University), Bilaspur (February 16-17, 2017).

#### **Schools Attended:**

- 1) **Optics & Photonics: Fundamentals and Applications** organized by the Optics and Photonics Centre, IIT Delhi and Delhi Chapter of the National Academy of Sciences, India (NASI) (June 6-24, 2022).
- 2) **Indo-Japan Accelerator School 2017 (IJAS-2017)** sponsored by SERB & DST, GoI held in Bose Auditorium, Indian Institute of Technology Roorkee (March 9-11, 2017).

#### **FIP/Refresher Courses/FDP/STC**

1. **“Guru Dakshta” Faculty Induction Programme** conducted by UGC-HRDC, Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) India during July 03-31, 2023.
2. **Refresher course on “Atom to Device Understanding of Emerging Semiconductor Technology”** organized by UGC-MMTTC, Indian Institute of Technology (Indian School of Mines), Dhanbad India during February 24 to March 07, 2025.
3. **Faculty Development Programme (FDP) on “E-Content Development”** conducted by Teaching Learning Centre, Ramanujan College, University of Delhi during April 19-25, 2023.
4. **NEP 2020 Orientation & Sensitization Programme** organized by UGC-MMTTC, Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) India during May 13-22, 2024.
5. **One-week Short Term Training Program (STTP) on *Quantum Computing and its Applications: A Modern Approaches and Practices*** organized by Department of Information Technology, National Institute of Technology Raipur during June 20-28, 2024.
6. **Faculty Development Program (FDP) on *Nanotechnology/Quantum Technology/Semiconductor Device Simulation & Experimental Characterization*** from

Nanoacademic Technology during November 25-29, 2024.

7. 40 hours Online **Faculty Development Program** on *Advancement in Nanoelectronics, Energy Conversion and Storage Technology: Design, Fabrication and Methodologies and Approaches* organized by HUB E & ICT Academy NIT Warangal, in Association with Spoke E & ICT Academy, NIT Raipur, during May 14-23, 2025.

**Invited Talk:**

- 1) Delivered an invited talk on *Great Discovery and Contribution of Indian Scientists* at Govt. Sukhram Nage College Nagri, District – Dhamtari, on 28<sup>th</sup> February 2023.

**Summer Research Project:**

- 1) **Study of Nuclear Reactions using FOTIA accelerator** under the supervision of Dr. V. V. Parkar (Scientific Officer) at Nuclear Physics Division, Bhabha Atomic Research Centre, Mumbai during the period June 01 – July 29, 2016.

**Extra-Curricular Activities:**

- 1) Member of Students' Council 2015-16 of Guru Ghasidas Vishwavidyalaya, Bilaspur (CG) India.

Bhoopendra Kumar Dewangan