Curriculum-Vitae

Dr. Madhvendra Nath Tripathi

Professor & Head

Department of Pure and Applied Physics

Responsibility	: Dean, Students' Welfare Dean, School of Law Incharge, National Center for Accelerator based Research (NCAR), Guru Ghasidas Vishwavidyalaya (Central University)
School of Studies	: Physical Sciences
Contact	: +91-9981401993; 07752-260204; 07752-260159
E-mail	: ommadhav27@gmail.com; mntripathi.physics@ggu.ac.in
Communication address:	(Office) Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya (Central University), Koni, Bilaspur, CG-495009, India. : (Residence) Laxmi Niwas Colony, Lodhipara, Srakanda, Bilaspur, CG-495001, India.

Area of Research Interest

- ***Computational material science***
  - To investigate the properties of the materials at atomic scale using Density Functional Theory
  - To design the compositions for desired properties
- ***Transport properties of solids***
  - To analyze the thermoelectric properties by solving Boltzmann Transport equations using MATLAB programming
- ***Thermal and thermoelectric properties of low-dimensional systems***
  - To investigate the thermal and thermoelectric properties of Quantum Well, and Quantum Wires
- ***Solar cell materials, Photovoltaic materials***
  - To explore the mechanical, electronic and optical properties of Photovoltaic materials and to design new compositions using codes based on DFT
- ***Optoelectronic materials***
  - Merger of cross-properties to predict multi-functional optoelectronic materials

Technical Skills

- Expertise on DFT based state of the art codes:
  - VASP (Vienna Ab initio Simulation Package),
  - Quantum Espresso: Open-Source computer codes for electronic-structure calculations
  - Gaussian: Quantum chemistry modeling
  - Abinit and Siesta: Open source
  - CASTEP (Cambridge Serial Total Energy Package) simulation package

- Worked on ***HITACHI SR 11000 Supercomputer*** (27.5 TFLOPS) at Materials Design division, Institute for Materials Research (IMR), Tohoku University, Sendai, Japan.

- Worked on ***Cluster machines*** at Theoretical Science Unit (TSU), Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India.

- Expertise on various interface and visualization softwares

- Working with Linux, Origin, MATLAB, LaTex, Xmgrace etc.

Personal And Educational Details

Date of Birth: 01-06-1974
Nationality: Indian

Educational Details:

High School	UP Board 1989	First with Distinction (National Scholarship)
Intermediate	UP Board 1991	First with Distinction
B.Sc.	University of Allahabad 1995	First
M.Sc.	University of Allahabad 1997	First **(Silver medal)**
D.Phil.	University of Allahabad 2007	

Ph. D. Title: ***Thermal and Thermoelectric Properties of Semiconductors***
(Supervisor: Prof. C. M. Bhandari, University of Allahabad, Uttar Pradesh, India.)

Other Exams Passed JRF- UGC-CSIR 1999,
MP-SLET 1999,
GATE 1999

Scientific Achievments: Professional/Research Positions

Teaching Experience UG/PG/Pre-PhD: 22 Years

- **(Present Position)**
  Professor, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya (Central University), Koni, Bilaspur, C.G., India 495009
  (Sept 2023-till date)

- **Associate Professor,** Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya (Central University), Koni, Bilaspur, C.G., India 495009.
  (May 2011-Sept 2023)

- **Visiting Scientist,** TUE-CMS (Thematic Unit of Excellence-Computational Material Science), Theoretical Science Unit, Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore, Karnataka, India (June 04, 2015 to June 26, 2015).

- **Post-Doctoral Research**, Prof. Y. Kawazoe Lab, Materials Design Division, Institute for Materials Research (IMR), Tohoku University, Sendai, Miyagi, Japan (January 2009-March, 2011).

- **Assistant Professor,** Department of Physics, CMP College, University of Allahabad, Allahabad, Uttar Pradesh, India 211001 (20 January, 2001- April, 2011).

- **Visiting Scientist,** Institute for Materials Research (IMR), Tohoku University, Sendai, Japan. (December 24, 2011 – January 14, 2012).

- **Visiting Scientist,** TUE-CMS (Thematic Unit of Excellence-Computational Material Science), Theoretical Science Unit, Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore, Karnataka, India (June 29-July 13, 2012).

- **Visiting Scientist,** Materials Design Division, Institute for Materials Research (IMR), Tohoku University, Sendai, Japan (November 21-30, 2012).

- **Summer Research Fellowship** sponsored by IASc-INSA-NASI, at Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore, Karnataka, India. **(**May-July, 2008).

- **Research Fellow** Department of Physics, University of Allahabad, Allahabad, Uttar Pradesh, India, 211001 (20 January 2001 - 29 March 2007).

- **CSIR Junior Research Fellow (JRF)** in the Department of Physics, University of Allahabad (22 July 2000-20 Jan 2001).

Research Projects

As Principal Investigator

1. **Funding Agency:** University Grants Commission, New Delhi (#F.No.: 41-1009/2012) **Title:** Density functional study of magneto-opto-electronic properties of transparent conducting oxides. (July 01, 2012-June 30, 2015)
2. **Funding Agency:** Inter-University Accelerator Center (IUAC), New Delhi (Ref:IUAC/XIII.3A; 31 July 2020)

   Title: Investigation of the ion irradiation on the 2D-Transition metal dichalcogenides

   Shifts sanctioned: 09 Low-energy ion-beam facility

As an Contributor in the Proposals of the Department

1. **Funding Agency:** University Grants Commission, New Delhi

   Title: Special Assistance Program (SAP) in Physics (F.530/2/DRS/2012(SAP-I)

   Fund and positions: 75 Lakhs and 05 BSR Fellowships

   Duration: 2012-2018
2. **Funding Agency:** Department of Science & Technology, Govt. of India

   Title: FIST program in Physics & Electronics (No. SR /FST/PSI-180/2012)

   Fund and positions: 80 Lakhs

   Duration: 2012-2017

As an participant of the Department for establishment of Mega Facility in the University

1. **Funding Agency**: Department of Atomic Energy (DAE)- Board of Research in Nuclear Physics (BRNS) Mega Project

   Title: Establishment of 3.0 MeV National Centre for Accelerator Based Research (NCAR) at Guru Ghasidas Vishwavidyalaya

   Duration: 2011-2014

Collaborative research work within India and Abroad

1. Prof. Umesh V. Waghmare, JNCASR, Bangalore, India *(Shanti-Swarup Bhatnagar Awardee)*
2. Prof. Vishnu Kamath, Bangalore University, India (*Ramanna Fellow*)
3. Prof. Y. Kawazoe, IMR, Tohoku University, Japan
4. Dr. Mohammad Khazaei, IMR, Tohoku University, Japan
5. Dr. M. Saeed Bahramy, University of Manchester, UK
6. Prof. Dinesh Kabra, Indian Institute of Technology, Mumbai, India
7. Dr. Ambuj Tripathi**,** Scientist-G, Inter-University Accelerator Centre, New Delhi.

Membership

1. **Life Member**, Indian Society for Particle Accelerator (ISPA), New Delhi.
2. **Life Member**, International Academy of Physical Sciences (IAPSc), Allahabad.

Book Published

Title: Thermal & thermoelectric properties of low-dimensional semiconductors
Author: Dr. M. N. Tripathi
Publisher: Scholars' Press, Saarbrücken, Germany (ISBN-10: 3639705394)
Year: 2013

Edited Book

Title: Waves, Sound and Optics
Course: B.Sc. Physics
Year: 2018
Punlisher: Registrar, Pt. Sunderlal Sharma (Open) University, Bilaspur, CG
Printed by: Pragya Publications Pvt. Limited, Mathura, UP

Research Guidance

Ph.D. Guided/On-going

1. **Research Scholar**: Mr. Santosh Singh,
   Date of Registration: 14 December 2014 (Reg. No. 125044504)
   Date of Award: 24 June 2019. (No.773/Conf./Ph.D./2019 dated 24/06/2019)
   Topic: First principles study of structural, optoelectronic and magnetic properties of transparent conductors

2. **Research Scholar**: Mr. Brij Kumar Bareth,
   Date of Registration: 27 August 2020
   Topic: Study of Structural, Electronic And Optical Properties Of 3D And 2D Photovoltaic Materials

Pre-Ph.D. Guide/Mentor

1. **Research Scholar**: Ms. Anshu Dewangan
   Date of Pre-PhD Registration: 16 December 2021

2. **Research Scholar**: Ms. Ragini Marawi
   Date of Pre-PhD Registration: 16 December 2021

List of Publications

- Study of Structural and electronic properties of few-layer MoS2 film,
  M Khan, S Kumar, A Mishra, I Sulania, **M. N. Tripathi**, A. Tripathi,
  Materials Today: Proc. 57, 100-105 (2022)

- Effect of Strain on Electronic And Optical Properties of The Lead Free Photovoltaic Material $Cs_2AgInBr_6$: DFT Study,
  Brij K. Bareth, **M. N. Tripathi**
  Proc. of DAE-SSPS 65, 604-606 (2021)

- Structural, elastic, electronic and optical properties of lead-free halide double perovskite Cs2AgBiX6 (X= Cl, Br, and I),
  M. N. Tripathi, A. Saha, S. Singh,
  Materials Research Express 6 (11), 115517 (2019)

- Sr-doped $LaMoN_3$ and $LaWN_3$: New degenerate p-type nitrides,
  Santosh Singh, and **M. N. Tripathi**,
  Journal of Applied Physics 124, 065109 (2018)

- Effect of Sr-doping on the band structure of BaTiO3through density functional theoretical calculations,
  C. Sidar, **M. N. Tripathi**, P. K. Bajpai,
  Computational Condensed Matter, 11, pp 27-32 (2017)

- Electronic structure and optical properties of prominent phases of TiO2: First- principles study,
  S. Singh, **M. N. Tripathi,**
  Pramana- Journal of Physics, 89 (1) 5 (2017)

- Structural, Optical, and Electronic Properties of Wide Bandgap Perovskites: Experimental and Theoretical Investigations
  N. K. Kumawat, **M. N. Tripathi**, U. V. Waghmare, and D. Kabra,
  Journal of Physical Chemistry A, 120 (22), pp 3917–3923 (2016)

- Enhanced optoelectronic property of ZnO under negative pressure condition: a first-principles study
  Santosh Singh and **M. N. Tripathi**,
  Mater. Res. Express 3 086301 (2016)

- New route of phase transition for enhanced TCO property of ZnO: A first-principles study,
  Santosh singh, and **M. N. Tripathi**,
  AIP Conference Proc., 1731, 090029 (2016)

- Effect of doping of tin on optoelectronic properties of indium oxide: DFT study
  M. N. Tripathi,
  AIP Conference Proc., 1665 (1), 090048 (2015)

- First-Principles Study of Structural, Electronic and Optical Properties of wz-Zinc Oxide,
  S. Singh and **M. N. Tripathi**,
  Adv. Sci. Lett. **21**, 2688-2691 (2015)

- Effect of Nature of Dopants on Electronic and Optical Properties of Indium Tin Oxide
  M. N. Tripathi and Y. Kawazoe,
  Adv. Sci. Lett. **21**, 2697-2700 (2015)

- Effect of phonon confinement on lattice thermal conductivity of lead Telluride quantum well structure
  M. N. Tripathi,
  AIP Conference Proceedings, 1591(1), 1316-1318 (2014)

- First-principles study of undoped and La-doped SrTiO3
  M. N. Tripathi and J. Pal,
  Proc. of *Multifunctional Materials Structures and Applications*, 208 (2014)

- First-principles analysis of structural and opto-electronic properties ofindium tin oxide
  M. N. Tripathi, K. Shida, R. Sahara, H. Mizuseki, Y. Kawazoe,
  Journal of Applied Physics, 111, 103110, (2012)

- Optoelectronic and magnetic properties of Mn-doped indium tin oxide: A first-principles study
  M. N. Tripathi, K. Shida, R. Sahara, H. Mizuseki, and Y. Kawazoe,
  Journal of Applied Physics, 112, 073105 (2012)

- Conductivity Percolation on a Cubic Lattice with Two Different Sizes of Particles
  K. Shida, R. Sahara, **M. N. Tripathi**, H. Mizuseki, and Y. Kawazoe,
  Material Transactions 52 (1), 108-111 (2011)

- First-principles simulation of cyanogen under high pressure: Formation of paracyanogen and an insulating carbon nitride solid
  M. Khazaei, **M. N. Tripathi**, and Y. Kawazoe,
  Physical Review B 83, 134111 (2011)

- Non-monotonic behavior of Electronic transport coefficients in Si-Gequantum wells
  M. N. Tripathi and C. M. Bhandari,
  ***Int. J. Mod. Phys.* B** 25(6), 813-822 (2011)

- Conductivity Percolation on a Cubic Lattice with Core-Shell Particles
  K. Shida, R. Sahara, **M. N. Tripathi**, H. Mizuseki, and Y. Kawazoe,
  Material Transactions 52 (6), 1259-1262 (2011)

- Polytypism and Stacking Disorders in Nickel Hydroxide: A First-principles Study
  M. N. Tripathi, U. V. Waghmare, T. N. Ramesh and P. V. Kamath,
  Journal of The Electrochemical Society 157 (3), A280-A284 (2010)

- Controlling the percolation threshold of conductor-insulator composites by changing the granular size of insulators
  K. Shida, R. Sahara, **M. N. Tripathi**, H. Mizuseki, and Y. Kawazoe,
  Material Transactions 51(6), 1141-1144 (2010)

- Conductivity percolation on a square lattice with core-shell particles
  K. Shida, R. Sahara, **M. N. Tripathi**, H. Mizuseki, and Y. Kawazoe,
  Material Transactions 51(4), 771-774 (2010)

- Lorenz number in Low-dimensional Structures
  M. N. Tripathi, C. M. Bhandari, M. P. Singh,
  Physica B 405, 4818-4820 (2010)

- Conductivity percolation on a square lattice with two different sizes of particles
  K. Shida, R. Sahara, **M. N. Tripathi**, H. Mizuseki, and Y. Kawazoe,
  Material Transactions 50 (12), 2848-2851 (2009)

- Thermal and thermoelectric behavior of Silicon-germanium quantum well structures
  M. N. Tripathi and C. M.Bhandari,
  Eur. Phys. J. B, 59, 503(2007)

- Material parameters for thermoelectric performance
  M. N. Tripathi and C. M.Bhandari,
  Pramana, 65 (3), 469(2005)

- Alternative thermoelectric performance indicator
  M. N. Tripathi and C. M.Bhandari,
  Proc. of the DAE Solid State Physics Symposium, 49, 728(2004)

- High-temperature thermoelectric performance of Si-Ge alloys
  M. N. Tripathi and C. M.Bhandari,
  Journal of Physics: Condensed Matter, 15, 5359(2003).

Policy Papers on Education Policy:

- Need of New Educational policy in India: What we can acquire from educational system of Japan
  S. Tripathi, M. N. Tripathi,
  The Journalist-A Media Research Journal, Vol.-04, No-28, page 127 (2018).

- Empowering Tribals: Need of Basic Scientific Education
  M N Tripathi, S. Tripathi,
  Indian Journal of Dalit and Tribal Studies (IJDTS), Vol.-06, No-01, Page 01 (2018).

Reviewer of International Journals:

- Journal of Physics: Condensed Matter **(**IOP Publishing)
- Solid State Communications (Elsevier)
- Optik (Elsevier)
- Applied Surface Science (Elsevier)
- Journal of Materials Science: Materials in Electronics (JMSE), (Springer)

Thesis Examined

1. Topic: Ab-Initio Investigations of Thermoelectric Behavior for Emerging 2D Monolayers
   Submitted by: Shivani Saini
   Supervisor: Dr. Sanjai Singh, Department of Applied Sciences, Indian Institute of Information Technology, Allahabad

2. Topic: Investigation of electronic and structural properties of selected transition metal carbide and nitride
   Submitted by: M. Kavitha
   Supervisor: Dr. R. Rajeswarapalanichamy, Department of Physics, NMMS Nadar College, Nagamalai, Madurai, India.

Invited Talk/Chaired Sessions (International/National)

- **Resource Person** in 7th Guru-Dakshta Faculty Induction Programme (FIP) organized by UGC-HRDC, Guru Ghasidas Vishwavidyalaya, Bilaspur, 30 Nov 2022.

- **Invited Talk** as Resource Person on the topic "Quantum mechanical mathematical models and simulation", in Refresher Course on "Advances in Mathematical and Physical Sciences" at HRDC, Dr. Harisingh Gour Vishwavidyalaya, **Sagar (M.P.), India, 21 Nov 2021**.

- **Invited talk** in national conference on New Horizons in Science, Engineering and Management to Combat Current Challenges (BITCON 2020) on the topic "Next generation flexible halide and nitride photovoltaic materials for green future" organized by Department of Applied Physics, Bhilai Institute of Technology, **Durg (Chhattisgarh), India, 20th November 2020**.

- **Resource Person** in One-week online Workshop "Holistic Approach towards Research in Pandemic" conducted by SHoDH Haryana in collaboration with Department of Genetics, Maharshi Dayanand University, Rohtak, **Haryana, India, 27th June, 2020**.

- **Invited Talk** in International e-Conference on Advanced Functional Materials and optoelectronic Devices (ICAFMOD-2020) on "First-Principles Study of the Lead-Free Photovoltaic Materials", organized by Prof. Rajendra Singh (Rajju Bhaiya) Institute of Physical Sciences for Study and Research, Veer Bahadur Singh Purvanchal University, **Jaunpur, UP, India June 13-15, 2020**.

- **Invited Talk** in National Conference on Recent Advances in physical Sciences (NCRAPS-2019), Govt. KRGPG College, Rajnandgaon, **Chhattisgarh, India, November 19, 2019**.
- **Invited talk** in 3rd National Conference on Advances in Environmental & Chemical Sciences (NCAECS) at Pt. R. S. S. Univ. **Raipur, March 27-28, 2019**.

- **Invited talk** in National conference on Carbon Management and Sustainable Development, at Arvind College, Kirandul, **Dantewada (C.G.), Feb 01-02, 2019**.

- **Invited talk** in the two days Skill Development Workshop Organized by Skill Development Cell and School of Physical Science, Guru Ghasidas Vishwavidyalaya, **Bilaspur, March 12-13, 2019**.

- **Invited talk** in 20th Orientation course, UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, March 12, 2018**.

- **Invited Talk** in XX-Natioanl Seminar on Ferroelectrics and Dielectrics (**NSFD-2018**), Guru Ghasidas Vishwavidyalaya, **Bilaspur, December 14-16, 2018**.

- **Resource person** for 22ndorientation course of UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, 30 August 2018**.

- **Invited talk** in Refresher course on Research Methodology, UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, June 20, 2018**.

- **Invited talk** at Department of Chemistry, 2nd National Conference on Advances in Environmental & Chemical Sciences to be held from at Pt. R. S.S. Univ. **Raipur, 22 March, 2018**.

- **Invited talk** in 21th Orientation course, UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, June 21, 2018**.

- **Invited talk** in 22nd **International Conference** of International Academy of Physical Sciences (CONIAPS-XXII) at Dr. Ram Manohar Lohia Avadh University, **Faizabad, U.P., India, April 14, 2018**.

- **Invited talk** in 19th Orientation course, UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, November 11, 2017**.

- **Invited talk** at Department of Physics, Bhilai Institute of Technology, Bhilai in BITCON 2017, **Chhattisgarh March 28, 2017**.

- **Invited talk** at Department of Physics, University of Allahabad, International conference on Emerging Materials and Applications (ICEMA), **Allahabad, February 21, 2017**.

- **Invited talk** in 17th Orientation course, UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, February 01, 2017**.

- **Presentation** in International Conference on Bharat Rejuvenation (ICBR 2017), Guru Ghasidas Vishwavidyalaya, **October 15-17, 2017**.

- **Resource person** for orientation course of UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, 25 May 2017.**

- **Invited Talk** in International Conference on New Scintillations on Materials Horizon (ICNSMH-2016), M.J.P. Rohilkhand University, **Bareilly, October 22, 2016**.

- **Invited talk** in Refresher course at Department of Physics, UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, June, 2016**.

- **Invited talk** in UGC-Refresher Course on Climate Change, Center for Atmospheric and Ocean Science, University of Allahabad, **Allahabad, UP, India, February, 2016**.

- **Invited talk** in UGC-Refresher Course on Climate Change, Center for Atmospheric and Ocean Science, University of Allahabad, Allahabad, UP, **India, January 22, 2015**.

- **Invited Talk** and **Chaired a session** in International conference of advanced materials for power engineering (ICAMPE), 2015 at Mahatma Gandhi University **Kottayam, Kerala, India, Dec 12, 2015**.

- **Invited Talk** in National Research Seminar on space science and environment, RGGPG College, **Ambikapur, 20 Nov 2015**.

- **Resource person** for orientation course of UGC-ASC, Guru Ghasidas Vishwavidyalaya, **Bilaspur, December 2014**.

- **Invited Talk** in Asian Consortium on Computational Material Science ACCMS- VO7, **Sendai & Matshushima, Japan, Nov.23-25, 2012**.

- **Invited Talk** in ITO Conference at Tohoku University, Katahira sakura hall, **Sendai, Japan, May 26, 2009**.

Papers presented in Conference/Symposium/Seminar/workshop

(International)

- Presented Policy Paper on Empowering Tribals: Need of Basic Scientific Education in International conference on "**NEP-NAMODI**" July 2016 at IGNTU University, Amarkantak, MP, **India**.

- Participated, Frontiers in Advanced Materials **(FAM)-2015**, June 15-18, 2015, Indian Institute of Sciences (IISc), Bengaluru, **India**.

- International e-workshop and conference on computational condensed matter physics and material science (**IWCCMP-2014**), November 25-30, 2014, ABV-Indian Institute of Information Technology, Gwalior, Madhya Pradesh, **India**.
- International conference on Multifunctional Materials, Structures and Applications (**ICMMSA-2014**), **December 22-24, 2014,** Organized by Centre for Interdisciplinary Research (CIR), MNNIT **Allahabad, India** in Collaboration with University of Missouri (MU), **Columbia, USA**.

- M. N. Tripathi, **MRS-J 2010**, Annual meeting of Material Research Society-Japan, **Dec.20-22, 2010, Yokohama, Japan**.

- M. N. Tripathi, The Fifth general meeting of **5th ACCMS-VO** (Asian Consortium on

Computational Materials Science-Virtual Organization), Institute for Materials Research, Tohoku University, **December 10-13, 2010, Sendai, Japan**.

- M. N. Tripathi, **2010 MRS Fall Meeting**: Transparent Conducting Oxides and Applications, **November 29-December 2, 2010, Boston, USA**.

- M. N. Tripathi, **Novosibirsk-Tohoku Global COE Conference** for young scientists, 21-26 September 2010, Nikolaev Institute of Inorganic Chemistry, SB RAS, **Novosibirsk, Russia**.

- M. N. Tripathi, **Spring College on Computational Nanoscience**, May 17-28, 2010, International centre for Theoretical Physics **(ICTP), Trieste, Italy.**

- M. N. Tripathi, Annual meeting of Society of Nanoscience and Technology, **Nanogakkai-May 2010, Tokyo, Japan**.

- M. N. Tripathi, Ab-initio study of opto-electronic properties of IAO and IATO, December 10, 2010, Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan**.

- M.N. Tripathi, Controlling 3D Percolation by Modulating the Granular Size of Materials, December 10, 2010, Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan**.

- M. N. Tripathi, 4th Asian Consortium on Computational Materials Science-VO **(ACCMS-VO), January 12-14, 2010, Sendai, Japan.**

- M. N. Tripathi, 119th Kinkenkouenkai, 14- 15 May, 2009, Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan**.

- M. N. Tripathi, 120th Kinkenkouenkai/2010 fall lecture meeting of IMR, 26-27 November, 2009, Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan**.

- M. N. Tripathi, 118th Kinkenkouenkai/2009 fall lecture meeting of IMR, 26-27 November, 2009, Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan**.

- M. N. Tripathi, Opto-electronic and magnetic properties of the Mn-doped indium tin oxide: A first-principles study, 5thAsian Consortium on Computational Materials Science (ACCMS), September 9- 11, 2009, **Hanoi University of Technology, Hanoi, Vietnam.**

- M. N. Tripathi, Electronic and optical properties of the oxidized indium tin oxide: A First principles study, Photonics and Opto-Electronics Meetings (POEM) 2009, August 8-10, 2009, Wuhan National Laboratory for Opto-Electronics **(WNLO), Wuhan, China**.

- M. N. Tripathi, Ab-initio Study of Manganese-doped Indium Tin Oxide, 117th Kinkenkouenkai2009, May 14 -15, 2009, Institute for Materials Research, **Tohoku University, Sendai, Japan**.

- M. N. Tripathi, Ab-initio study of the electronic properties of the oxidized indium tin oxide, 7th annual meeting of Society of Nano Science and Technology, May 9 -11, 2009, **University of Tokyo, Tokyo, Japan**.

- M. N. Tripathi, Ab-initio Study of the Polytypes of β-phase Nickel-hydroxide, The Third General Meeting of ACCMS-VO (Asian Consortium on Computational Materials Science - Virtual Organization), February 16 - 18, 2009, Institute for Materials Research, Tohoku University, **Sendai, and Matsusima, Japan**.

(National)

- M. N. Tripathi, DAE-Solid State Physics Symposium 2014 (DAE-SSPS 2014), Vellore Institute of Technology, Vellore, Tamilnadu, India, December 16-20, 2014.

- XVIII National Seminar on Ferroelectrics and Dielectrics (NSFD), University of Manipur, Imphal, Manipur, India, November 3-5, 2014.

- National Workshop on "Particle Accelerators for Interdisciplinary Research", Guru Ghasidas Vishwavidyalaya, Bilaspur, CG, February 18-19, 2014.

- 58th DAE Solid State Physics Symposium (DAE-SSPS), Thapar University, Patiala, Punjab, India. (Sponsored by Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy (DAE), Government of India), December 17-21, 2013.

- National Workshop cum Theme Meeting on "Ion Beam Induced Material Modifications & Neutron Generation using 3 MV Particle Accelerator: Applications in Physical, Chemical and Life Sciences", Guru Ghasidas Vishwavidyalaya, Bilaspur, CG, August 19-20, 2013.

- National Workshop on “Accelerator based interdisciplinary research in basic sciences ”, March 28-29, 2012, Guru Ghasidas Vishwavidyalaya, Bilaspur.

- M. N. Tripathi and C. M. Bhandari, 74th Annual Session, The National Academy of Sciences, Dec. 2 to 4, 2004, Jaipur, India.

- M. N. Tripathi and C. M. Bhandari, Phonon Thermal Transport in free-standing Si-Ge quantum well structures, National Conference on Scientific and Legal challenges of Global warming, February 10-11, 2008, B N College, Kanpur, India.

- M. N. Tripathi and C. M. Bhandari, National Conference on Scientific Applications of mathematics (NACSAM), December 23-24, 2007, V.S. Mehta College of Science, Kaushambi, India.

- Indo-Polish Workshop on "Liquid Crystals", Physics Department, University of Allahabad, 12 December, 2007.

Other Invited Lectures on Social Issues:

1. Topic: "The Gandhian Philosophy and Cleanliness"; SEC Railway Zonal Head Quarter, October 01, 2021.
2. Topic: "Human Values and ethics", Resource Person at 2nd Guru Dakshata Faculty Induction Program, HRDC-GGV, Bilaspur, 15 March 2021.
3. Topic: "Status of poverty elevation and food security in India", in Seminar on Sustainable quality education and SDGs, IQAC, Guru Ghasidas Vishwavidyalaya, Bilaspur, July 18, 2018.

Academic visits Abroad

Visited to reputed Academic Institution abroad for academic pursuit:

- Nikolaev Institute of Inorganic Chemistry, SB RAS, Novosibirsk, **Russia**.
- International centre for Theoretical Physics (ICTP), Trieste, **Italy**.
- Massachusetts Institute of Technology (MIT), Boston, **USA**.
- University of Tokyo, Tokyo, **Japan**.
- Wuhan National Laboratory for Opto-Electronics (WNLO), Wuhan, **China**.
- Hanoi University of Technology, Hanoi, **Vietnam**.
- National Institute of Natural sciences, Okazaki, **Japan**.

Awards and Honors

- Junior Research Fellow award by UGC-CSIR, December 2000
- Summer Research Fellowship, IASc-INSA-NASI, 2008
- Visiting Scientist, Thematic Unit of Excellence-Computational Material Science, JNCASR, Bangalore, 2008, 2012, 2015
- Visiting Scientist, Institute for Materials Research (IMR), Tohoku University, Sendai, Japan, Dec 24, 2011 – Jan14, 2012 and November 21-30, 2012
- National Merit Scholarship (1990-94) Department of Secondary Education, Govt. of Uttar Pradesh

Participation in Course/Symposium/Schools/Training/Workshop

(International/National)

Programme	Period	Organized/sponsored by
Short Term Course on Thematic Popularization of NEP 2020 (Workshop on Step by step application of NEP 2020)	29th October, 2021	Conference Hall, Administrative Building, GGV
"International Webinar on Mathematical Applications in Human Cognition and Neuroscience"	16th September, 2020	Department of Mathematics, Assam Don Bosco University, Guwahati, Assam, India.
One Day Workshop on Assessment and Accreditation	27 January 2020	Internal Quality Assurance Cell, Guru Ghasidas Vishwavidyalaya, Bilaspur
Workshop on Web of Science and Endnote	August 02, 2019,	Central Library, Guru Ghasidas University, Bilaspur.
Workshop on Urkund and Zotero,	August 30, 2019	Central Library, Guru Ghasidas University, Bilaspur
Three days training of teachers (ToT) for students induction program (SIP) "Deeksharambh"	21 -23 August 2019	MHRD, Govt. of India and University Grants Commission (UGC), Central Regional Office, Bhopal.
Principal's Meet on "Academic Leadership in Higher education: The contemporary Indian perspective",	August 25, 2018	UGC-HRDC, GGV
Principal's Meet on "Academic Leadership in Higher education: The contemporary Indian perspective",	25 July 2017	UGC-HRDC, GGV
Summer Research Fellowship	May-July, 2008	IASc-INSA-NASI, at Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore, Karnataka, India.
Visiting Scientist, TUE-CMS (Thematic Unit of Excellence- Computational Material Science)	June 29-July 13, 2012	Theoretical Science Unit, Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore, Karnataka, India.

Visiting Scientist, TUE-CMS (Thematic Unit of Excellence- Computational Material Science),	June 04, 2015 to June 26, 2015	Theoretical Science Unit, Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), Bangalore, Karnataka, India.
Visiting Scientist, CCMS, JNCASR and learned Abinit code	Sept 29 – Oct 11, 2008	CCMS, JNCASR, Bangalore
Visiting Scientist and learned the advanced computational skills	December 24, 2011 – January 14, 2012	Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan.**
Visiting Scientist learned the advanced modeling methods	November 21-30, 2012	Institute for Materials Research (IMR), Tohoku University, **Sendai, Japan.**
National Workshop on "Particle Accelerators for Interdisciplinary Research"	February 18-19, 2014	Guru Ghasidas Vishwavidyalaya, Bilaspur, CG.
National Workshop cum Theme Meeting on "Ion Beam Induced Material Modifications & Neutron Generation using 3 MV Particle Accelerator: Applications in Physical, Chemical and Life Sciences",	August 19-20, 2013	Guru Ghasidas Vishwavidyalaya, Bilaspur, CG
Indo-Polish Workshop on "Liquid Crystals"	12 December, 2007	Physics Department, University of Allahabad
(Short-course) on "Advanced Computational Methods in Atomistic Modeling of Materials"	September 7-8, 2009	**Hanoi University of Technology, Hanoi, Vietnam.**
(SERC School) on "Correlated electron systems" sponsored by DAE, Govt. Of India.	15 Nov. to 27 Nov.2004 (Two weeks)	**Harish Chandra Research Institute (HRI), Jhunsi, Allahabad,**
Refresher course sponsored by UGC	March 8 to 28, 2006	UGC-ASC, Banaras Hindu University (BHU), Varanasi, India.
Orientation course sponsored by UGC from	Aug 18 to Sept. 13, 2003	UGC-ASC, University of Allahabad, Allahabad, India.

(Science journalism training programme) organized by National Council for Science and Technology Communication **(NCSTC)**,	(Oct-Dec, 2000)	Dept. Of Science and Technology **(DST), Govt. of India and Vigyan Parishad,** Allahabad, India.
Spring College on Computational nanoscience, ICTP, Trieste, Italy	May 17-28, 2010	International centre for Theoretical Physics **(ICTP), Trieste, Italy**.

Completed Online Courses *(through Swayam Portal)*

1. Online Course: **Scientific Computing using MATLAB**
Duration: 14 Sept 2020 to 04 December 2020 (12 Weeks)
Counducted By: Departemnt of Mathematics, **IIT Delhi, New Delhi**
Status: Completed and cleared the examination held on **19 December 2020**

2. Online Course: **Refresher Course on Leadership and Governance in Higher Education**
Duration: 21 November 2018 to 28 February 2019 (12 Weeks)
Counducted By: Savitribai Phule **Pune University, Pune**
Status: Completed and cleared the ARPIT examination held on **30 March 2019**

Organized International/National Seminar/Conference

- Co-Convenor, XXI National Seminar on Ferroelectrics and Dielectrics (NSFD), Guru Ghasidas Vishwavidyalay, Bilaspur, CG, India, November 3-5, 2018.
- Organizing Secretary, International Conference on Bharat Rejuvenation (ICBR 2017), Guru Ghasidas Vishwavidyalaya, October 15-17, 2017.
- Coordinator, National Science Day Program and Competitions, Guru Ghasidas Vishwavidyalay, Nov.05-06, 2019.Feb 28, 2012- March 30, 2012.
- Organising Secretary, National Seminar on Dakshin Kosal, Guru Ghasidas Vishwavidyalay, Nov.05-06, 2019.
- Member, organizing committee, One day national seminar on advanced synthesis and characterization of materials for technological applications (ASCMTA-2015), Guru Ghasidas Vishwavidyalay.

Teaching-Learning Contribution

(I) UG/PG Projects

PG Project Guided

M.Sc. (Physics) IV Semester : **42** (Major Project Work)

M.Sc. (Electronics) II Semester : **25** (Minor Project Work)

UG Project Guided

B.Sc. (Physics) VI Semester **36**

B.Sc. (Electronics) VI Semester **24**

(II) Courses Taught

(A) CMP College, University of Allahabad, Allahabad: Jan 2000- Dec 2008

(i) Taught:

B.Sc.: Statistical Mechanics, Electrodynamics, Electronics and Laboratory work

(B) Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur: May 2011 till now

(i) Taught:

B.Sc.: Thermal Physics; Electronics; Solid State Physics, Electricity and Magnetism

M.Sc.: Electrodynamics, Atomic and Molecular Physics, Condensed Matter Physics

Pre-Ph.D.: Computational Material Science

(III) Syllabus Prepared/Modified

(A) Modified the syllabus as per choice based credit system (CBCS) scheme: March 2016

- Solid State Physics: B.Sc. (Physics)-V and VI Semester
- Solid State Physics: M.Sc. (Physics)-II Semester
- Advanced Condensed Matter Physics: M.Sc. (Physics) III and IV Semester
- Digital Electronics: B.Sc. (Electronics)-II Semester

(B) Prepared syllabus of Computational Physics for M.Sc. (Physics) III Semester

(C) Modified syllabus as per requirement of LOCF based CBCS scheme: March 2022

- Thermal Physics: B.Sc. (Physics)-III Semester
- Atomic and Molecular Physics: M.Sc. (Physics)-III Semester
- Electromagnetic theory and wave propagation: M.Sc. (Electronics)-II Semester

(D) Prepared the 4-year UG course structure for Physics/Electronics as per UGC guideline for implementation of National Education Policy 2020

(IV) You tube Channel for Physics Courses:

Name of Channel : Madhvendra Nath Tripathi
Link: https://www.youtube.com/channel/UChCAr45yCHwbx3uISGq6t6g/featured

Corporate Responsibilities

(I) Administrative responsibilities

University Level

- **Dean, Students' Welfare,** Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur, CG (April 2017-Till date)
- **Member, Executive Council**, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur (Since 2023)
- **Member, Academic Council**, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur, (since March 2017)
- **Member, NEP 2020 Implementation Task Force Committee**, GGV (Since 2021)
- **Member, School Board**, School of Physical Sciences (since 2021)
- Nodal officer, Online Students Grievance Portal, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur (since March 2017)
- Member, Industry Interface Cell, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur (Since 2015)
- Chairman, Guru Ghasidas Vishwavidyalaya Students Council 2018, 2020
- Member, Institutional Student Grievance Redressal Committee (ISGRC), GGV 2019-2021
- Senior Center Superintendent, University Main Examination at JDUCollege, Baradwar, 2011-12.
- Member, Pay revision committee for non-teaching employees, GGV, 2016-17
- Member, ordinance revision committee, Guru Ghasidas Vishwavidyalaya 2016-17
- Member, Admission drafting committee, Guru Ghasidas Vishwavidyalaya, 2017
- Center Superintendent, Vishwavidyalaya entrance test (VET-VRET) 2015, UTD Center, Guru Ghasidas Vishwavidyalaya, Bilaspur
- Center Superintendent, Vishwavidyalaya, University Examinations at Physics Building, Dec 2016
- Incharge, UGC-NET Examination (Physics Building), June 2014, December 2014, and December 2013
- Member, NKN broadcast committee, Guru Ghasidas Vishwavidyalaya (Central

University), Bilaspur 2013, 2014, 2015

- Member, Core Committee, UTD odd semester examination, December 2015
- Co-coordinator, CSIR-NET coaching cell, Equal opportunity cell, May 2016
- VC Nominee, Ad-hoc teachers selection committee, July 2017
- ADSW, CMP Degree College, University of Allahabad, Allahabad, 2007
- ADSW, CMP Degree College, University of Allahabad, Allahabad, 2008, 2009
- Member, Ad-hoc teachers selection committee interview for physics, July 2014
- VC Nominee, Ad-hoc teachers selection committee, January 2017
- Coordinator, Technical Committee, August 2017
- Member, DRC, Sanskrit Subject, December 2018-2020
- Co-cordinator, Live telecast of Pariksha pe Charcha, Jan 2019
- Member, Swachha Core Team, November 2018 till now
- Member, NKN telecast of President of India, January 2017, July 2016, January 2016, July 2015, January 2013
- Presiding Officer, GGV-SC Election 2013, 2014, 2016
- Chief Counting officer, GGV-SC Election 2013,
- Member, Dept of Physics, GGV-SC Election 2016
- Member of other various committees formed by the University time totime

Department Level

- **Head of the Department, Since December 15, 2021**
- **Member, Departmental Research Committee (DRC)**, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur 2016-2018, 2019-2022
- **Member, Board of studies**, Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur (2013-2016)
- **Academic Coordinator**, Department of Pure and Applied Physics, GGV, Bilaspur, 2012-2015.
- Incharge, Departmental Library, (2012-2022)
- Invited Member, SAP advisory committee-DRS Department of Pure

and Applied Physics, GGV, 2016.

- Incharge, Server Facility, Softwares and computational material science, Depatment of Pure and Applied Physics, GGV (Since 2013)
- Admission Committee, Physics, (2011-2017)
- Member, Committee of Academic Plan and requirement of Department, 2013-14
- Verification and monitoring of lab equipment, 2012
- PG lab equipment solid state physics lab Since 2012
- Incharge, X-Ray Diffractometer facility, 2012
- Incharge, General M.Sc. Lab Dec (2012-2022)
- Member, Project Purchase Committee (PPC), Department of Pure and Applied Physics, GGV (October 2018, Sept 2019, April 2014)
- Member, Department Purchase Committee, Since January 2013
- Member, Physical Verification of NCAR and Dept. of Physics, Oct 2016, 2014-15, May 2019
- Member, Sports Selection Committee, January 2017
- Supervision of construction of Accelerator Center, Dec 2012-2014
- Member/Coordinator of various other committees to support the smooth functioning of the Department.

(II) Few Examination/Evaluation/Moderation in other Universities/Colleges

- Observer, C L Chowksey Medical College, Sept 2014
- External Examiner, Pt. RSS University, Raipur, Nov 2016
- External Examiner, University of Allahabad, April 2011
- External Examiner, Pt. RSS University, Raipur, January 2017, 2018
- Expert Member, Moderation Board, M.Sc. Physics, Sambalpur University, March 2016

(III) Organized Co-curricular/Extension activities for students at the University Level

- Coordinator, National Science Day Celebration during 27 Feb 2012 to 30 March 2012. The Department formed University Science Club. Several science related program for students were organized.
- Coordinator, Teachers Day Celebration 05 September and Competitions (Since 2017)
- Coordinator, Gandhi Jayanti on 2nd October (Since 2017)
- Coordinator, Celebration of National Unity Day on 31 October (Since 2017)
- Coordinator, Establishment Day Programs of the University on 15 January and various related functions (Since 2018)
- Coordinator, Guru Ghasidas Jayanti on 18 December and University level competitions (Since 2017)
- Coordinator, Vivekanand Jayanthi on 12 January and University level competitions (since 2018)
- Coordinator, Program on Surgical Strike Day, 27 Sept 2018
- Coordinator, Dr B R Ambedkar Jayanti 14 April 2022
- Co-coordinator, GGV Convocation ceremony, April 2022
- Organized various extension activities related to Bank/Post Office/Health/Insurance etc. for the welfare and awareness of the students of the University for their Overall Personality Development.