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Humboldt Fellow, Alexander von Humboldt, Germany

https://www.humboldt-foundation.de/pls/web/pub_hn_query.humboldtianer_details?p_lang=en&p_externe_id=7000267857

Google Scholar:

<https://scholar.google.com/citations?user=NrC1MK0AAAAJ&hl=en>

Research Gate:

https://www.researchgate.net/profile/Madhav_Ghimire2

PROFESSIONAL EXPERIENCES

Central Department of Physics, Tribhuvan University, Kathmandu, Nepal
Associate Prof. in Physics August, 2018 – Present

Leibniz Institute for Solid State and Materials Research, IFW- Dresden, Dresden, Germany
AvH-Humboldt Post-doctoral Fellow 2015 – August, 2018

Condensed Matter Physics Research Center, Butwal, Rupandehi, Nepal
President 2010 – present

National Institute for Materials Science (NIMS), Tsukuba, Japan
NIMS Post-Doctoral Researcher 2012 – 2014

Nepal Academy of Science and Technology (NAST), Lalitpur, Nepal
Senior Scientific Officer 2011 – Jan. 2012

Bose Institute, Kolkata, India [NAST-INSANA Bilateral exchange program]
Visiting Scientist (supported by INSA, India) November, 2011 – December, 2011

Mizoram University, Department of Physics, Aizawl, India
Ph.D. Scholar (Physics) 2007 – 2010

Mizoram University, Department of Physics, Aizawl, India
Lecturer (temporary) 2005 – 2008

**Govt. Higher Sec. School & Mizoram Inst. Comprehensive Education
Government of Mizoram, Aizawl, India**

Lecturer (Physics)

2005 – 2011

New Horizon Institute & Glorious College, Butwal, Nepal

Lecturer (Physics)

2003 – 2005

EDUCATION

- **Doctor of Philosophy (Ph.D.) Physics**, November, 2010

Department of Physics, Mizoram University, Aizawl, India

Advisor: Prof. Dr. R. K. Thapa

Topic: A theoretical study of photofield emission and band structure calculations

- **Master of Science (M. Sc.) Physics** (Solid State Physics), June 2003

Central Department of Physics, Banaras Hindu University, Varanasi, India

Advisor: Prof. Dr. Sanjay Kumar

Topic: Series analysis and critical phenomena

- **Bachelor of Science (B. Sc.) Physical Science**, (Phys., Stat., Maths.), 2001

Pachhunga University College, North-Eastern Hill University, Shillong, India

Subjects: Physics, Statistics, Mathematics

RESEARCH INTERESTS

- Topological phase transition in kagome systems and prediction of magnetic Weyl semi-metals
- Thin-film deposition of magnetic ions in weak and strong topological insulators
- Magnetic anisotropies energies in two-dimensional (2D) and 3D systems.
- Surface and interfacial properties of 2D materials including bismuth-rhodates
- Chemical gating and doping in weak topological insulators for transport expt.
- Energy efficient materials for thermoelectric applications
- Electronic and magnetic properties of complex oxides (perovskites, etc.)

MAJOR AWARDS & ACHIEVEMENTS

- Vidhya Bhusan-Ka Medal from the President of Nepal, 2018
- Humboldt Post-Doctoral Award (HERMES), Alexander von Humboldt Foundation, Germany, November, 2015
- Nominated for the 66th Lindau Nobel Laureate Meeting, 2016
- Research grant awarded by TWAS, Italy (2012) for the project “Study of the electronic and magnetic properties of rare-earth antimonides systems”
- TWAS Award - 2011 in Physics, Third World Academy of Sciences, Italy
- Awarded the NAST-INSA Bilateral Exchange Program, INSA, India, 2011

SIGNIFICANT PUBLICATIONS

- Dirac fermions and flat bands in the ideal kagome metal FeSn, *Nat. Mater.* **19**, 163 (2020). <https://doi.org/10.1038/s41563-019-0531-0> & arXiv:1906.02167v1 (2019)
- Creating Weyl nodes and controlling their energy by magnetization rotation, *Phys. Rev. Research* **1**, 032044 (R) (2019) **Rapid Communications** & arXiv:1903.03179 (2019)
- Chemical gating of a weak topological insulator: Bi₁₄Rh₃I₉ –*Nano Letters*, **17**, 6303 (2017).

- Electronic, optical and thermoelectric properties of bulk and surface (001) CuInTe₂: A first principles study, *J. Alloys. Compd.*, **699**, 1003 (2017).
- Ba₂NiOsO₆: A Dirac-Mott insulator with ferromagnetism near 100 K, *Phys. Rev. B* **94**, 235158 (2016).
- Possible half-metallic antiferromagnetism in an iridium double-perovskite material, *Phys. Rev. B* **93**, 134421 (2016).
- Study of the enhanced electronic and thermoelectric properties of Zr_xHf_{1-x-y}Ta_yNiSn: a first principles study, *RSC Advances* **5**, 95353 (2015).
- Half metallic ferromagnetism in tri-layered perovskites Sr₄T₃O₁₀ (T=Co, Rh), *J. Appl. Phys.* **117**, 063903 (2015).
- High-pressure synthesis, crystal structure, and magnetic properties of 5d double perovskite oxides Ca₂MgOsO₆ and Sr₂MgOsO₆, *Inorg. Chem.* **54**, 3422 (2015).
- First principles study of the electronic and magnetic properties of semi-Heusler alloys NiXSb (X=Ti, V, Cr and Mn), *J. Alloys Compds.* **509** 9742-9752 (2011).
- Ground state electronic and magnetic properties of RCrSb₃ (R= La, Ce, Sm, Gd, Dy): A first principles study, *Sol. Stat. Commn.* **151** 1224-1227 (2011).

REVIEWER OF JOURNALS

- Physical Review Letters
- Physical Review B & Rapid
- Physical Review Materials
- Applied Physics Letters
- Euro Physics Letters
- RSC Advances
- Journal of Alloys and Compounds
- Journal of Magnetism and Magnetic Materials
- Journal of Physics and Chemistry of Solids
- Journal of Physics: Conference Series
- Solid State Communications, etc.
- Modern Physics Letters B
- International Journal of Modern Physics B
- Phase Transitions
- Journal of Electronic Materials & many more ...

Associate Editor (2016): Journal of Physics: Conference Series, Vol. 765,

24th Condensed Matter Days National Conference (CMDAYS2016)

29–31 August 2016, Mizoram, India