

BIMAL K C, MS, Ph.D. candidate (ABD)

CONTACT INFORMATION

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EDUCATION

Ph.D. in Computational Science
University of Texas at El Paso (UTEP), El Paso, TX Expected: Summer 2024

MS in Physics
UTEP, El Paso, TX Awarded: Dec 2019
Tribhuvan University (TU), Kathmandu, Nepal Awarded: Dec 2016

BS in Physics
TU, Kathmandu, Nepal Awarded: Jan 2013

ACADEMIC INTEREST & EXPERTISE

Computational Science (CPS):

- Atomistic modeling & simulations, High-Performance Computing (HPC), Quantum Computing, Mathematical & Statistical Modeling, etc.

Data Science & Statistics:

- Data Mining, Machine Learning, Computational Statistics, Statistical Process Control, etc.

Computer Science:

- Serial & Parallel Programming, Distributed Data Storage & Processing, Functional & Object-Oriented Programming, etc.

ACADEMIC EXPERIENCES

Graduate Research Associate
Department of Physics, UTEP Aug 2023 - Present

Visiting Summer Research Student
The University of California at Berkeley Jun 2023 - Jul 2023

Graduate Teaching Assistant, UTEP
Computational Science Program, UTEP Jun 2022 - Aug 2022
Department of Physics, UTEP Aug 2017 - May 2019

- Tutor - Algebra & Calculus at Math Resource Center for Students (MaRCS).
- Teaching Instructor - Introductory Electromagnetism & General Physics Lab.

Lab Instructor for TA's- Introductory Electromagnetism Lab
Department of Physics, UTEP Jan 2018 - May 2019

RESEARCH INTEREST

- Theoretical computer science emphasizing modeling, simulation, & visualization for understanding real-world phenomena & computation fundamentals.
- Use of classical & ab-initio calculations of vibrational spectra of solids as a function of temperature.

- Understanding material behavior using *ab-initio* calculation (QMD, DFT, VASP, Quantum Espresso, QHA).
 - Phase stability of the material & their alloys, phonons, & phonon entropy, Machine learning, Atomistic simulations of materials at extreme environment.
- PAPER PUBLICATIONS**
1. S. Deng, B. K C, & V. Kreinovich (2023). *Why Optimization Is Faster than Solving Systems of Equations: A Qualitative Explanation*. In Uncertainty, Constraints, & Decision Making (pp. 341-344). Cham: Springer Nature Switzerland.
- THESIS PUBLICATIONS**
2. B. K C, " *Quasi-Harmonic & Anharmonic Entropies in Transition Metals*" (2019). Open Access Theses & Dissertations. 2866. https://scholarworks.utep.edu/open_etd/2866
- CONFERENCE PUBLICATIONS**
3. J. A. Muñoz, H. R. Pulido, B. K C, R. Hemley, R. Kumar, "*Finite-temperature lattice dynamics of FeV at high pressure from first principles*". Bulletin of the American Physical Society, 2023.
 4. B. K C, C Garcia, R Ravelo, "*Phonon Anharmonicity in the Vibrational Entropy of Transition Metals*". Bulletin of the American Physical Society, 2021.
 5. B. K C, "*Classical Molecular Dynamical Simulations of Melting Curve of Copper*", DOI: 10.13140/RG.2.2.31333.14567, 2018.
- ACCEPTED FOR PUBLICATION**
6. C. Diaz-Caraveo, B. K C, & J. A. Muñoz, "*Lattice Dynamics & Free Energies of Fe-V Alloys with Thermal & Chemical Disorder*", (Accepted), **Journal of Physics: Condensed Matter**.
 7. H. R. Pulido, B. K C, R. Kumar, R. J. Hemley, & J. A. Muñoz, "*Thermally frustrated phase transition in body-centered cubic FeV*", (Accepted), **AIP Advances**.
- UNDER REVIEW/WORKING PAPERS**
8. B. K C, R. Parajuli, "*First Principle Study of NaCl •••A-B (A-B= C₂H₄, NH₃, H₂O, H₂, HF, HNa, HLi, FNa, FLi, NaCl) Complexes*", (Under Review), **The Journal of Chemical Physics**.
 9. B. K C, J. A. Muñoz, R. Ravelo, "*Anharmonic Vibrational Entropy in Elemental Tantalum at High Temperature*".
 10. C. Garcia, B. K C, R. Ravelo, "*Comparative Study of Analytical Models of the Gruneisen Parameter of Metals as a Function of Pressure*".
 11. C. Diaz-Caraveo, D. A. Juarez, B. K C, E. O. Oyetunji, & J. A. Muñoz "*Effect of short-range order on the mechanical & thermal properties of shape-memory alloy NiTi*."
 12. B. Ayirizia, B. K C, & J. A. Muñoz "*Magnetic Order-Dependent Properties of FeV and Fe₃V Alloys: Computational Insights from Density Functional Theory*."

CONFERENCE PRESENTATIONS

13. “*First Principle Investigation of Magnetic, Elastic, & Thermodynamic Properties of Ordered D03 Fe₃V*”, New Mexico State University (NMSU) Nepalese Student Association (NeSA) 15th International Conference, Las Cruces, NM (Mar 16, 2024).
14. “*Free Energy of the Order-disorder Phase Transition in FeV from Molecular Dynamics*”, APS March Meeting, Minneapolis, MN (Mar 3 - 8, 2024).
15. “*Harmonic Ensemble Lattice Dynamics of Crystals with Thermal & Configurational Disorder*”, 30th Joint NMSU/UTEP Workshop on Mathematics, Computer Science, & Computational Sciences, University of Texas at El Paso, El Paso, TXM (Oct 28, 2023).
16. “*Why Optimization is Faster than Solving Systems of Equations: A Qualitative Explanation*”, 27th Joint NMSU/UTEP Workshop on Mathematics, Computer Science, & Computational Sciences, New Mexico State University, Las Cruces, NM (Apr 2, 2022).
17. “*Anharmonicity in the Vibrational Entropy of Transition Metals*”, APS March Meeting, online (Mar 16, 2021).
18. “*Classical Molecular Dynamical Simulations of Melting Curve of Copper*”, 10th International Conference, 2018, New Mexico State University, Las Cruces, NM (Mar 31, 2018).

GRANTS, AWARDS, & SCHOLARSHIPS

- **Graduate Research Award**, Graduate School, UTEP (Aug 2023- Present).
- **Best Oral Presentation Award**, New Mexico State University (NMSU)-NeSA 15th International Conference (Mar 2024).
- **Forum on Graduate Student Affairs (FGSA) URM March meeting award** (Feb 2021).
- **Reading is Fundamental (RIF) award**, College of Science, UTEP (Nov 2020).
- **Academic & Research Excellence Outstanding Graduate Student Physics**, UTEP (Dec 2019).
- **C. Sharp Cook Graduate Scholarship**, UTEP (Oct 2019).
- **Outstanding achievement: Better Rated by Students**, Physics, UTEP (May 2019).
- **Graduate Assistantship**, College of Science, UTEP (Aug 2017-May 2023).

SOFTWARE SKILLS

Statistical Programming & Scientific Computing:

- R, Python, Matlab, Mathematica, Gaussian, C(including OpenMPI, CUDA), etc.

Scientific Typesetting:

- L^AT_EX, B_BT_EX, Microsoft Office Package, Adobe Package, etc

Operating Systems:

- Microsoft Windows, Linux, & UNIX

PROFESSIONAL TRAINING & WORKSHOPS	Sustainable Horizons Institute (SHI) Sustainable Research Pathways, Berkeley National Laboratory (DOE) Berkeley, California	Jan 2023
	PDB3 AWS Python Developer Bootcamp TAKEO TECH LLC Manhattan, New York	Sep 2022 – Dec 2022