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: Fall 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.

- Develop a mathematical models using appropriate numerical methods, implement them in the form of a computer program, and visualize the numerical results.
- 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.

PUBLICATONS

1. C. Diaz-Caraveo, B. K C, & J. A. Muñoz, "*Lattice Dynamics & Free Energies of Fe-V Alloys with Thermal & Chemical Disorder*", Journal of Physics: Condensed Matter. https://doi.org/10.1088/1361-648X/ad66a5.
2. Homero Reyes-Pulido, Bimal K C, Ravhi S. Kumar, Russell J. Hemley, Jorge A. Muñoz; *Thermally frustrated phase transition at high pressure in B2-ordered FeV*. AIP Advances, 14 (7): 075108 (2024). https://doi.org/10.1063/5.0219881.
3. S. Deng, B. K C, & V. Kreinovich. *Why Optimization Is Faster than Solving Systems of Equations: A Qualitative Explanation.* Uncertainty, Constraints, and Decision Making. Cham: Springer Nature Switzerland(2023). 341-344.
4. B. K C, "*Quasi-Harmonic & Anharmonic Entropies in Transition Metals*" (2019). Open Access Theses & Dissertations. 2866. https://scholarworks.utep.edu/open_etd/2866.

UNDER REVIEW/ WORKING PAPERS

5. B. K C, R. Parajuli,"*First Principle Study of NaCl $\bullet\bullet\bullet$A-B (A-B= C_2H_4,NH_3, H_2O, H_2, HF, HNa, HLi, FNa, FLi, NaCl) Complexes*", (Under Review),*The Journal of Chemical Physics.*
6. B. K C, J. A. Muñoz, R. Ravelo, "*Anharmonic Vibrational Entropy in Elemental Tantalum at High Temperature*".
7. C. Garcia, B. K C, R. Ravelo, "*Comparative Study of Analytical Models of the Gruneisen Parameter of Metals as a Function of Pressure.*".
8. 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.*"
9. B. Ayirizia, B. K C, & J. A. Muñoz "*Magnetic Order-Dependent Properties of FeV and Fe_3V Alloys: Computational Insights from Density Functional Theory.*"

CONFERENCE PRESENTATIONS

10. "*First Principle Investigation of Magnetic, Elastic, & Thermodynamic Properties of Ordered D03 Fe_3V*", New Mexico State University (NMSU) Nepalese Student Association (NeSA) 15th International Conference, Las Cruces, NM (Mar 16, 2024).
11. "*Free Energy of the Order-disorder Phase Transition in FeV from Molecular Dynamics*", APS March Meeting, Minneapolis, MN (Mar 3 - 8, 2024).
12. "*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).

13. "*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).
14. "*Anharmonicity in the Vibrational Entropy of Transition Metals*", APS March Meeting, online (Mar 16, 2021).
15. "*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:

- LaTeX, BibTeX, Microsoft Office Package, Adobe Package, etc

Operating Systems:

- Microsoft Windows, Linux, & UNIX

PROFESSIONAL TRAINING & WORKSHOPS

Sustainable Horizons Institute (SHI) Sustainable Research Pathways, Jan 2023
Berkeley National Laboratory (DOE)
Berkeley, California

PDB3 AWS Python Developer Bootcamp Sep 2022 – Dec 2022
TAKEO TECH LLC
Manhattan, New York