

Ganesh Pokharel

Assistant Professor of Physics, University of West Georgia

Address: TLC-2120, Perry College of Mathematics, Computing, and Sciences

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Faculty Profile link: [Ganesh Pokharel](#)

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Education

- Postdoctoral Scholar:** Materials Department, University of California Santa Barbara. 2020–2024
Advisor: [Prof. Stephen Wilson](#)
<https://quantumfoundry.ucsb.edu/people/associates/ganesh-pokharel>
Responsibilities: *Synthesizing new innovative materials, characterizing their properties, performing scattering measurements, writing papers, analyzing data, mentoring undergraduates, and building up research collaborations.*
- PhD in Physics:** Department of Physics, University of Tennessee 2013–2020
Dissertation: *Geometric frustration and competing interactions in selected chalcogenide spinels.*
Advisors: [Prof. David Mandrus](#)
[Sr. Researcher Andrew Christianson](#)
- MS in Physics:** Department of Physics, University of Memphis 2011–2013
Dissertation: *Structural, Magnetic and Mossbauer Spectral Study Of $Gd_2Fe_{16}Ga_{0.5}RM_{0.5}$ ($RM = Ti, V, Zr, Nb, Mo, W$), $Gd_2Fe_{17-x}Ti_x$ ($x = 0-1.5$) and $Gd_2Fe_{16}Ga_{1-x}Ti_x$ ($x = 0-1$) Intermetallic Compounds.*
Advisor: [Prof. Sanjay Mishra](#)
- MSc in Physics:** Central Department of Physics, Tribhuvan University 2004–2007
Research area: *Distribution of galaxies in merging binary clusters.*
Advisor: [Prof. Binil Aryal](#)
- BSc in Physics:** Mahendra Morang Adarsha Multiple Campus, Tribhuvan University 2001–2004.

Teaching Experience

- Assistant Professor of Physics, University of West Georgia** Fall Semester, 2024
Principles of Physics II (PHYS 2212)
Introductory Physics II (PHYS 1112)
Principles of Physics II Lab (PHYS 2212L)
- Graduate Teaching Assistant at UTK, USA** 2013–2015
Fundamentals of Physics Electricity and Magnetism lab/recitation.
- Graduate Teaching Assistant at U of M, USA** 2011–2013
Conceptual Physics lab/recitation
- Physics Lecturer at GoldenGate International College, Nepal** 2008–2011
High school Physics, Undergraduate level Modern physics, Heat and Thermodynamics, Mechanics, Electronics, and Plasma Physics.
- High school physics teacher at National Academy for Engineering Education, Nepal** 2008-2011
Entrance preparation classes for high school graduates to help them secure limited spots in government-funded medical and engineering programs.
- High school physics teacher at Sukuna Multiple Campus, Nepal** 2007-2008

Mentoring Experience

Assistant Professor of Physics, University of West Georgia:

Academic and research supervisor for undergraduate students, guiding them in their coursework and research projects.

August 2024–present

Graduate Student Assistant Coordinator, *supermentor*, UC Santa Barbara,

Quantum Foundry undergraduate summer research internship program

2022

Mentor, Quantum Foundry undergraduate summer research internship program

2021

Publications

37. F. Theuss, A. Shragai, G. Grissonnanche, L. Peralta, I. M. Hayes, S. R Saha, Y. S. Eo, A. Suarez, A. C. Salinas, **G. Pokharel**, S. D. Wilson, N. P. Butch, J. Paglione, and B. J. Ramshaw, Absence of a Bulk Thermodynamic Phase Transition to a Density Wave Phase in UTe_2 , *Phys. Rev. B* 110, 144507, 2024. (Published as an Editor's suggestion).
<https://link.aps.org/doi/10.1103/PhysRevB.110.144507>
36. S. J. Gomez Alvarado, **G. Pokharel**, B. R. Ortiz, J. A. M. Paddison, S. Sarker, J. P. C. Ruff, and Stephen D. Wilson, Frustrated Ising charge correlations in the kagome metal ScV_6Sn_6 , *Phys. Rev. B (Letter)* 110, L140304, 2024.
<https://link.aps.org/doi/10.1103/PhysRevB.109.235145>
35. H. S. Arachchige, L. M. DeBeer-Schmitt, L. L. Kish, B. K. Rai, A. F. May, D. S. Parker, **G. Pokharel**, Wei Tian, D. G. Mandrus, S. M. Thomas, P. F. S. Rosa, J. D. Thompson, S. Z. Lin, and A. D. Christianson, Nanometric modulations of the magnetic structure of the element Nd, *Materials Today Quantum*, 100016, 2024.
<https://doi.org/10.1016/j.mtquan.2024.100016>
34. Jayden Plumb, Andrea Capa Salinas, Krishnanand Mallayya, Elliot Kisiel, Felipe Carneiro, Reina Gomez, **G. Pokharel**, E.A. Kim, S. Sarker, Z. Islam, S. Daly, and S. D. Wilson, Phase-Separated Charge Order and Twinning Across Length Scales in CsV_3Sb_5 , *Phys. Rev. Materials* 8, 093601, 2024.
<https://link.aps.org/doi/10.1103/PhysRevMaterials.8.093601>
33. H. Li, S. Cheng, **G. Pokharel**, P. Eck, C. Bigi, F. Mazzola, G. Sangiovanni, S. D. Wilson, D. D. Sante, Z. Wang and I. Zeljkovic, Discovery of enormous orbital magnetic moments induced by finite Berry curvature in a kagome metal TbV_6Sn_6 , *Nat. Phys.* 20, 1103–1109, 2024.
<https://doi.org/10.1038/s41567-024-02487-z>
32. B. R. Ortiz, P. M. Sarte, **G. Pokharel**, M. J. Knudston, S. J. Gomez, A. F. May, S. Calder, L. Mangin-Thro, A. R. Wildes, H. D. Zhou, G. Sala, C. R. Wiebe, S. D. Wilson, J. A. M. Paddison, and A. A. Aczel, Revisiting spin ice physics in the ferromagnetic Ising pyrochlore $Pr_2Sn_2O_7$, *Phys. Rev. B* 109, 134420, 2024.
<https://link.aps.org/doi/10.1103/PhysRevB.109.134420>
31. S. J. Gomez Alvarado, E. Zoghlin, A. Jackson, L.s Kautzsch, J. Plumb, M. Aling, A. C. Salinas, **G. Pokharel**, Y. Pang, R. M. Gomez, and S. D. Wilson, LOKII project: Advances in high-pressure laser floating zone growth, *Rev. Sci. Instrum.* 95, 033903, 2024.
<https://doi.org/10.1063/5.0186528>
30. S. Cheng, Z. Ren, H. Li, J. Oh, H. Tan, **G. Pokharel**, J. Destefano, E. Rosenberg, Y. Guo, Y. Zhang, Z. Yue, Y. Lee, S. Gorovikov, M. Zonno, M. Hashimoto, D. Lu, L. Ke, F. Mazzola, J. Kono, R. J. Birgeneau, J. H. Chu, S. D. Wilson, Z. Wang, B. Yan, M. Yi, and I. Zeljkovic, Nanoscale visualization and spectral fingerprints of the charge order in ScV_6Sn_6 distinct from other kagome metals, *npj Quantum Mater.* 9, 14, 2024 .
<https://doi.org/10.1038/s41535-024-00623-9>

29. C. Dhital, **G. Pokharel**, B. Wilson, I. Kendrick, M. Asmar, D. Graf, J. Guerrero-Sanchez, R. Gonzalez Hernandez, and S.D. Wilson, Evidence of 2D Fermi surface and non-trivial electronic topology in Kagome lattice magnet GdV_6Sn_6 using de Haas van Alphen oscillations, *Phys. Rev. B* 109, 235145, 2024.
<https://link.aps.org/doi/10.1103/PhysRevB.109.235145>
28. **G. Pokharel**, B. Ortiz, L. Kautzsch, S. J. Gomez Alvarado, K. Mallayya, G. Wu, E. Kim, J. P. C. Ruff, S. Sarker, and S. D. Wilson, Frustrated charge order and cooperative distortions in ScV_6Sn_6 , *Phys. Rev. Mater* 7, 104201, 2023.
[10.1103/PhysRevMaterials.7.104201](https://doi.org/10.1103/PhysRevMaterials.7.104201)
27. M. Tuniz, A. Consiglio, D. Puntel, C. Bigi, P. Eck, S. Enzner, **G. Pokharel**, P. Orgiani, W. Bronsch, V. Polewczyk, Phil D. C.4 King, Justin W. Wells, I. Zeljkovic, P. Carrara, G. Rossi, J. Fujii, I. Vobornik, S. D. Wilson, R. Thomale, G. Sangiovanni, G. Panaccione, F. Cilento, D. Di Sante, and F. Mazzola, Dynamics and Resilience of the Charge Density Wave in a bilayer kagome metal, *Communications Materials* 4, 103, 2023.
<https://doi.org/10.1038/s43246-023-00430-y>
26. K. Shrestha, B. Regmi, **G. Pokharel**, S. G. Kim, S. D. Wilson, David E. Graf, C. Phillips¹, and T. Nguyen, Electronic properties of kagome metal ScV_6Sn_6 using high field torque magnetometry, *Phys. Rev. B* 108, 245119, 2023.
<https://link.aps.org/doi/10.1103/PhysRevB.108.245119>
25. D.W. Kim, S. Liu, Chongze Wang, H.W. Nam, **G. Pokharel**, S. D. Wilson, J.-H. Cho, S. J. Moon, Infrared probe of charge density wave gap in ScV_6Sn_6 , *Phys. Rev. B* 108, 205118, 2023.
<https://link.aps.org/doi/10.1103/PhysRevB.108.205118>
24. Y. Y. Pai, C. E. Marvinney, **G. Pokharel**, J. Xing, H. Li, X. Li, M. Chilcote, M. Brahlek, L. Lindsay, H. Miao, A. S. Sefat, D. Parker, S. D. Wilson, J. S. Gardner, L. Liang, B. J. Lawrie, Angular-Momentum Transfer Mediated by a Vibronic-Bound-State, *Adv. Sci.* 2304698, 2023.
<https://doi.org/10.1002/advs.202304698>.
23. B. R. Ortiz, A. C. Salinas, M. Knudtson, P. M. Sarte, **G. Pokharel**, and S. D. Wilson, Complete miscibility of the AV_3Sb_5 kagome superconductors: design of mixed A-site AV_3Sb_5 (A: K, Rb, Cs) alloys, *Phys. Rev. Mater* 7, 014801, 2023.
<https://doi.org/10.1103/PhysRevMaterials.7.014801>
22. L. Kautzsch, B. R. Ortiz, K. Mallayya, J. Plumb, **G. Pokharel**, J. P. C. Ru, Z. Islam, E. Kim, R. Seshadri, and S. D. Wilson, Structural evolution of the kagome superconductors AV_3Sb_5 (A = K, Rb, and Cs) through charge density wave order, *Phys. Rev. Mater* 7, 024806, 2023.
<https://doi.org/10.1103/PhysRevMaterials.7.024806>
21. B. R. Ortiz, **G. Pokharel**, M. Gundayao, H. Li, F. Kaboudvand, L. Kautzsch, S. Sarker, J. P. C. Ruff, T. Hogan, S. J. Gomez Alvarado, P. M. Sarte, G. Wu, T. Braden, R. Seshadri, E. S. Toberer, I. Zeljkovic, S. D. Wilson, YbV_3Sb_4 and EuV_3Sb_4 , vanadium-based kagome metals with Yb^{2+} and Eu^{2+} zig-zag chains, *Phys. Rev. Mater* 7, 064201, 2023.
<https://doi.org/10.1103/PhysRevMaterials.7.064201>
20. D. D. Sante, C. Bigi, P. Eck, S. Enzner, A. Consiglio, **G. Pokharel**, P. Carrara, P. Orgiani, V. Polewczyk, J. Fujii, P. D. C King, I. Vobornik, G. Rossi, I. Zeljkovic, S. D. Wilson, R. Thomale, G. Sangiovanni, G. Panaccione, and F. Mazzola Flat band separation and resilient spin-Berry curvature in bilayer kagome metals, *Nat. Physics*, 2023.
<https://doi.org/10.1038/s41567-023-02053-z>
19. K. E. Wycko, L. Kautzsch, J. L. Kaufman, B. R. Ortiz, A. Kallistova, **G. Pokharel**, K. M. Taddei, M. Frontzek, J. Liu, S. D. Wilson, A. V. Ven, and R. Seshadri, Electrochemical Control of Magnetism on the Breathing Kagome Network of $\text{Li}_x\text{ScMo}_3\text{O}_8$, *Chem. Mater.* 2023.
<https://doi.org/10.1021/acs.chemmater.3c00202>

18. Z. Porter, **G. Pokharel**, J. Kim, P. J. Ryan, and S. D. Wilson, Incommensurate Magnetic Order in the Z_2 Kagome Metal GdV_6Sn_6 , *Phys. Rev. B* 108, 035134, 2023.
<https://doi.org/10.1103/PhysRevB.108.035134>
17. L. Kautzsch, Y. M. Oey, H. Li, Z. Ren, B. R. Ortiz, **G. Pokharel**, R. Seshadri, J. Ruff, Z. Wang, I. Zeljkovic, S. D. Wilson, Incommensurate charge-stripe correlations in the kagome superconductor $CsV_3Sb_{5-x}Sn_x$, *npj Quantum Mater.* 8, 37, 2023.
<https://doi.org/10.1038/s41535-023-00570-x>
16. **G. Pokharel**, B. Ortiz, P. Sarte, L. Kautzsch, G. Wu, J. Ruff, S. D. Wilson, Highly anisotropic magnetism in the vanadium-based kagome metal TbV_6Sn_6 , *Phys. Rev. Mater.* 6, 104202, 2022.
<https://doi.org/10.1103/PhysRevMaterials.6.104202>
15. S. Gao, **G. Pokharel**, A. F. May, J. A. M. Paddison, C. Pasco, Y. Liu, K. M. Taddei, S. Calder, D. G. Mandrus, M. B. Stone, and A. D. Christianson, Line-Graph Approach to Spiral Spin Liquids, *Phys. Rev. Lett.* 129, 237202, 2022.
<https://doi.org/10.1103/PhysRevLett.129.237202>
14. B. R. Ortiz, P. M. Sarte, **G. Pokharel**, M. Garcia, M. Marmolejo, S. D. Wilson, Traversing the pyrochlore stability diagram; microwave-assisted synthesis and discovery of mixed B-site Ln_2InSbO_7 family, *Phys. Rev. Mater.* 6, 094403, 2022.
<https://doi.org/10.1103/PhysRevMaterials.6.094403>
13. B. R. Ortiz, M. M. Bordelon, P. Bhattacharyya, L. Posthuma, **G. Pokharel**, P. M. Sarte, T. Petersen, M. S. Eldeeb, G. Granroth, C. R. Dela Cruz, L. Hozoi, S. Calder, D. L. Abernathy, and S. D. Wilson, Mixed-chalcogen delafossite compounds; discovery and crystal field analysis of $RbCeO_2$ and $RbCeX_2$ alloys (X_2 : S_2 , SeS , Se_2 , $TeSe$, Te_2), *Phys. Rev. Mater.* 6, 084402, 2022.
<https://doi.org/10.1103/PhysRevMaterials.6.084402>
12. **G. Pokharel**, S. M. L. Teicher, B. R. Ortiz, P. M. Sarte, G. Wu, S. Peng, J. He, R. Seshadri, and S. D. Wilson, Study of the electronic properties of topological kagome metals YV_6Sn_6 and GdV_6Sn_6 , *Phys. Rev. B* 104 (23), 235139, 2021.
<https://doi.org/10.1103/PhysRevB.104.235139>
11. **G. Pokharel**, H. Suriya Arachchige, S. Gao, Y. Qiu, G. Ehlers, S. -H. Do, M. Stone, J. A. Rodriguez-Rivera, H. Zhang, R. S. Fishman, S. Wilson, D. Mandrus, A. D. Christianson, Spin dynamics in skyrmion host lacunar spinel GaV_4S_8 , *Phys. Rev. B* 104 (22), 224425, 2021.
<https://doi.org/10.1103/PhysRevB.104.224425>
10. S. Peng, Y. Han, **G. Pokharel (Equal contributions to the first author)**, Z. Li, M. Hashimoto, D.-H. Lu, Y. Luo, H. Li, M. Guo, B. Wang, S. Cui, Z. Sun, Z.-H. Qiao, S. D. Wilson, and J.-F. He, Intrinsic flat-bands, Dirac fermions and electron-boson coupling in kagome-lattice metal GdV_6Sn_6 , *Phys. Rev. Lett.* 127, 266401, 2021.
<https://doi.org/10.1103/PhysRevLett.127.266401>
9. G. Sala, M. B. Stone, Binod K. Rai, A. F. May, Pontus Laurell, V. O. Garlea, N. P. Butch, M. D. Lumsden, G. Ehlers, **G. Pokharel**, D. Mandrus, D. S. Parker, S. Okamoto, Gabor B. Halász, and A. D. Christianson, van Hove singularity in the magnon spectrum of the antiferromagnetic quantum honeycomb lattice, *Nat. Commun.* 12, 171 2021.
<https://doi.org/10.1038/s41467-020-20335-5>
8. B. K. Rai, **G. Pokharel**, H. Suriya Arachchige, S. H. Do, Q. Zhang, M. Matsuda, M. Frontzek, G. Sala, V. Ovidiu Garlea, A. D. Christianson, and A. F. May, Complex magnetic phases in the polar tetragonal material $NdCoGe_3$, *Phys. Rev. B* 103, 014426, 2021 (Published as an Editor's suggestion).
<https://doi.org/10.1103/PhysRevB.103.014426>

7. S. Gao, A. F. May, M. Du, J. A. M. Paddison, H. Suriya Arachchige, **G. Pokharel**, C. dela Cruz, Q. Zhang, G. Ehlers, D. S. Parker, D. G. Mandrus, M. B. Stone, and A. D. Christianson, Hierarchical excitations from correlated spin tetrahedra on the breathing pyrochlore lattice, *Phys. Rev. B* 103, 214418, 2021. <https://doi.org/10.1103/PhysRevB.103.214418>
6. K. Thirunavukkuarasu, R. Richardson, Z. Lu, D. Smirnov, N. Huang, N. Combs, **G. Pokharel**, and D. Mandrus, Magneto-elastic coupling in multiferroic metal-organic framework $[(\text{CH}_3)_2\text{NH}_2]\text{Co}(\text{HCOO})_3$, *AIP Advances* 11, 015040, 2021. <https://doi.org/10.1063/9.0000147>
5. **G. Pokharel**, H. Suriya Arachchige, T. J. Williams, A. F. May, R. S. Fishman, G. Sala, S. Calder, G. Ehlers, D. S. Parker, T. Hong, A. Wildes, D. Mandrus, J. A.M. Paddison, and A. D. Christianson, Cluster frustration in the breathing pyrochlore magnet $\text{LiGaCr}_4\text{S}_8$ "Cluster frustration in the breathing pyrochlore magnet $\text{LiGaCr}_4\text{S}_8$, *Physical Review Letters* 125, 167201, 2020 (Published as an Editor's suggestion). <https://doi.org/10.1103/PhysRevLett.125.167201>
4. E. M. Clements, R. Das, **G. Pokharel**, M. H. Phan, A. D. Christianson, D. Mandrus, J. C. Prestigiacomo, M. S. Osofsky, and H. Srikanth, Robust cycloid crossover driven by anisotropy in the skyrmion host GaV_4S_8 , *Phys. Rev. B* 101, 094425, 2020 (Editors' suggestion). <https://doi.org/10.1103/PhysRevB.101.094425>
3. **G. Pokharel**, A. F. May, D. S. Parker, S. Calder, G. Ehlers, A. Huq, S. A. J. Kimber, H. Suriya Arachchige, L. Poudel, M. A. McGuire, D. Mandrus, A. D. Christianson, Negative thermal expansion and magneto-elastic coupling in the breathing pyrochlore lattice material $\text{LiGaCr}_4\text{S}_8$, *Phys. Rev. B* 97, 134117, 2018. <https://doi.org/10.1103/PhysRevB.97.134117>
2. M. T Warren, **G. Pokharel**, A. D. Christianson, D. Mandrus, R. Valdés Aguilar, Terahertz dielectric analysis and spin-phonon coupling in multiferroic GeV_4S_8 , *Phys. Rev. B* 96, 054432, 2017. <https://doi.org/10.1103/PhysRevB.96.054432>
1. **G. Pokharel**, KS Syed Ali, SR Mishra, Structural, magnetic and Mossbauer studies of Ti-doped $\text{Gd}_2\text{Fe}_{17-x}\text{Ti}_x$ and $\text{Gd}_2\text{Fe}_{16}\text{Ga}_{1-x}\text{Ti}_x$ ($0 \leq x \leq 1$), *J. Magn. Magn. Mater* 382, Pages 31-42, 2015. <https://doi.org/10.1016/j.jmmm.2014.12.079>

Manuscripts under Review

7. C. Bigi, M. D'urnagel, L. Klebl, A. Consiglio, **G. Pokharel**, F. Bertran, P. Le F'evre, A. Vita, J. A. Miwa, J. W. Wells, R. Comin, R. Thomale, I. Zeljkovic, B. R. Ortiz, S. D. Wilson, G. Sangiovanni, F. Mazzola, and D. Di Sante, Pomeranchuk instability from electronic correlations in CsTi_3Bi_5 kagome metal, submitted for publication (Under review).
6. F. Mazzola, W. Brzezicki, C. Bigi, A. Consiglio, L. Jacopo D'Onofrio, M. T. Mercaldo, A. Kłosiński, F. Lois Bertran, P. Le F'evre, O. J. Clark, M. Tuniz, A. De Vita, V. Polewczyk, J. B. Jacobsen, H. Jacobsen, J. A. Miwa, J. W. Wells, A. Jana, I. Vobornik, J. Fujii, G. Sangiovanni, S. Sanna, P. Bonfa, B. R. Ortiz, **G. Pokharel**, S. D. Wilson, D. Di Sante, C. Ortix, and M. Cuoco, Anomalous spin-optical chiral effect in Ti-based kagome metal, submitted for publication (Under review).
5. J. Zheng, C. Chen, G. Pan, X. Zhang, C. Chen, Y. Liao, **G. Pokharel**, A. Salinas, Y. Wei, H. C. Po, D. Pan, S. Wilson, Z. Y. Meng, and B. Jäck, Visualizing Loop Current Excitations, submitted for publication (Under review).
4. C. Phillips, K. Shtefienko, T. Nguyen, A. N. C. Salinas, B. A. Magar, Y. Wang, **G. Pokharel**, D. Popović, S. D. Wilson, D. E. Graf, and K. Shrestha, Fermi surface reconstruction under pressure in kagome metal CsV_3Sb_5 , submitted for publication (Under review).

3. M. Tuniz, A. Consiglio, **G. Pokharel**, F. Parmigiani, T. Neupert, R. Thomale, G. Sangiovanni, S. D. Wilson, F. Cilento, D. Di Sante, and F. Mazzola, Strain-induced enhancement of the charge-density-wave in the kagome metal ScV_6Sn_6 , submitted for publication (Under review).
2. M. E. Turiansky, S. Mu, L. Razinkovas, K. Parto, S. D. Patel, S. Doan, **G. Pokharel**, S. D. Wilson, G. Moody, and C. G. V. d. Walle, Characterization of Chromium Impurities in $\beta - \text{Ga}_2\text{O}_3$, submitted for publication (Under review).
1. Y. Chen, T. Kongruengkit, A. C. Salinas, R. Yang, Y. Quan, F. Zhang, **G. Pokharel**, L. Kautzsch, S. Mu, S. D. Wilson, J. W. Harter, and Bolin Liao, Absence of Phonon Softening across a Charge Density Wave Transition due to Quantum Fluctuations, submitted for publication (Under review).

Professional Appointments

Assistant Professor of Physics

Perry College of Mathematics, Computing, and Sciences
University of West Georgia, Carrollton, USA

August 2024 - Present

Postdoctoral Scholar (Postdoc)

Materials department, University of California
Santa Barbara, USA

July 2020 - July 2024

Graduate Research Assistant (GRA)

Department of Physics & Astronomy, The University of Tennessee
Knoxville, USA

August 2015 - June 2020

Graduate Teaching Assistant (GTA)

Department of Physics & Astronomy, The University of Tennessee
Knoxville, USA

August 2013 - July 2015

Graduate Teaching Assistant (GTA)

The Department of Physics & Materials Science, The University of Memphis
Memphis, USA.

August 2011 - July 2013

Physics Lecturer

GoldenGate International College
Kathmandu, Nepal.

August 2008 - July 2011

High school physics teacher

Sukuna Multiple Campus
Morang, Nepal.

August 2007 - July 2008

Conference and meeting Presentations

31. "Frustrated charge order and competing charge density wave instabilities in ScV_6Sn_6 " **G. Pokharel**, L. Kautzsch, B. Ortiz, S. G. Alvarado, K. Mallayya, E. Kim, J. Ruff, S. Sarker, S. Wilson, American Physical Society (APS) March meeting, March 3-8, 2024.
<https://meetings.aps.org/Meeting/MAR24/Session/B17.5>
30. Uniaxial magnetism in the V-based kagome metal TbV_6Sn_6 , NSF Quantum Foundry Site Visit, UC Santa Barbara, May 18, 2023.
29. Highly anisotropic magnetism in the V-based kagome metal TbV_6Sn_6 , Design Principles for Topological Quantum Materials, March 13- 14, 2023.

28. Uniaxial ferromagnetism in the vanadium-based kagome metal TbV_6Sn_6 , G. Pokharel, B. Ortiz, J. Chamorro, P. Sarte, L. Kautzsch, G. Wu, S. Wilson, APS March meeting, March 5-9, 2023.
<https://ui.adsabs.harvard.edu/abs/2023APS..MARQ56014P/abstract>
27. Career as a scientist, invited talk to motivate high school and undergraduate students at various academic institutes in Nepal, January 1-10, 2023.
26. My journey to Postdoctoral scholar, invited talk to motivate high school students at Ventura High-School, Ventura, California, September 14, 2022.
25. How to make a scientific poster, Friday Skills Workshop, Invited talk to the UCSB Quantum Foundry undergraduate internship program, July 22, 2022.
24. Vanadium based kagome metals $\text{RV}_6\text{S}_n\text{6}$ ($\text{R}=\text{Y}, \text{Gd}$): synthesis and characterization, Invited talk at the College of Wooster, March 9, 2022.
https://physics.wooster.edu/wp-content/uploads/2022/03/Colloquium2022_GaneshPokharel.pdf
23. “Tunable magnetic layer in the vanadium-based kagome metals RV_6Sn_6 ($\text{R}=\text{Y}, \text{Gd}..$)”, Invited talk on the Association of Nepali Physicists in America (ANPA) colloquium, May 15, 2022.
<https://anpaglobal.org/anpa-colloquium-may-2022-dr-ganesh-pokharel/>
22. “Evolution of field-induced and impurity-induced magnetic order in the quantum spin liquid candidate NaYbSe_2 ” G. Pokharel, S. Bear and S. D. Wilson, American Conference on Neutron Scattering, June 5-9, 2022.
21. “Physical properties of the vanadium-based kagome metals YV_6Sn_6 and GdV_6Sn_6 ” G. Pokharel, S. M. L. Teicher, B. R. Ortiz, P. M. Sarte, G. Wu, S. Peng, J. He, R. Seshadri, and S. D. Wilson, APS March meeting, March 14-18, 2022.
20. “Spin excitations in the multiferroic skyrmion host GaV_4S_8 ” G. Pokharel, H.S. Arachchige, G. Ehlers, S. Do, M. Stone, M. Lumsden, H. Zhang, Y. Qiu, R. Fishman, S. Wilson, D. Mandrus, A. Christianson, APS March meeting, March 15-19, 2021.
<https://ui.adsabs.harvard.edu/abs/2021APS..MARC38009P/abstract>
19. Organized a joint event between NSF Quantum Foundry, UCSB and NSF Challenge Institute for Quantum Computation, UC Berkeley and then moderated a session “Topological Materials and Quantum Computation” on August 6, 2021.
<https://quantumfoundry.ucsb.edu/events/all/2021/nsf-ciqc-qf-joint-meeting>
18. “Spin Excitations in Multiferroic Skyrmion Host GaV_4S_8 ” G. Pokharel, H. S. Arachchige, G. Ehlers, S. Do, M. Stone, M. Lumsden, H. Zhang, C. Batista, Y. Qiu, R. Fishman, D. Mandrus, A. Christianson, American Conferences on Neutron Scattering (ACNS), July 13-16, 2020.
17. “Inelastic neutron scattering study of the lacunar spinel GaV_4S_8 ” G. Pokharel, H. S. Arachchige, G. Ehlers, S. Do, M. Stone, M. Lumsden, H. Zhang, C. Batista, Y. Qiu, R. Fishman, D. Mandrus, A. Christianson, Association of Nepali Physicists in America (ANPA), July 17-19, 2020.
16. “Synthesis and neutron scattering study of the quantum materials” G. Pokharel, H. S. Arachchige, G. Ehlers, S. Do, M. Stone, M. Lumsden, H. Zhang, C. Batista, Y. Qiu, R. Fishman, D. Mandrus, A. Christianson, Invited virtual seminar talk, Patan Multiple Campus, Nepal July 24, 2020.
15. “Neutron scattering study on the breathing Pyrochlore Lattice material $\text{LiGaCr}_4\text{S}_8$ ” G. Pokharel, H. S. Arachchige, A. May, T. Hong, S. Calder, G. Sala, G. Ehlers, D. Mandrus, A. Christianson, APS March Meeting, March 4–8 2019.
<https://ui.adsabs.harvard.edu/abs/2019APS..MARF37003P/abstract>

14. “Negative thermal expansion and magnetoelastic coupling in the breathing pyrochlore lattice material $\text{LiGaCr}_4\text{S}_8$ ”, **G. Pokharel**, A. F. May, D. S. Parker, S. Calder, G. Ehlers, A. Huq, S. A. J. Kimber, H. S. Arachchige, L. Poudel, M. A. McGuire, D. Mandrus, and A. D. Christianson, American conferences on neutron scattering (ACNS), June 24-29, 2018.
13. “Negative thermal expansion in thiospinel $\text{LiGaCr}_4\text{S}_8$ ”, **G. Pokharel**, A. Christianson, D. Mandrus, A. May, H. S. Arachchige, A. Huq, G. Ehlers, S. Kimber, S. Calder, L. Poudel, APS March meeting, March 5–9, 2018.
<https://ui.adsabs.harvard.edu/abs/2018APS..MARA44006P/abstract>
12. “Physical properties of the cubic spinel $\text{LiGaCr}_4\text{S}_8$ ”, **G. Pokharel**, A. Christianson, D. Mandrus, A. Huq, G. Ehlers, A. May, L. Poudel, H. S. Arachchige, Joint Nanoscience and Neutron Scattering User Meeting, July 31 - August 4, 2017.
11. “Neutron scattering study on the breathing Pyrochlore Lattice material $\text{LiGaCr}_4\text{S}_8$ ”, **G. Pokharel**, A. F. May, D. S. Parker, S. Calder, G. Ehlers, A. Huq, S. A. J. Kimber, H. Suriya Arachchige, L. Poudel, M. A. McGuire, D. Mandrus, and A. D. Christianson, Neutron scattering user meeting, June 4-5, 2019.
10. “Spin Excitations in the thiospinel FeCr_2S_4 ”, **G. Pokharel**, H. Cao, A. E. Taylor, G. Ehlers, D. Mandrus, A.D. Christianson, American conference on neutron scattering (ACNS), July 10-14, 2016.
9. “Structural and magnetic characterization of YCo_5/FeNi composite powder prepared by mechanical alloying and subsequent annealing”, **G. Pokharel** and S.R. Mishra, 58th MMM Conference, November 4-8, 2013.
8. “Neutron scattering study of breathing pyrochlore lattice material $\text{LiGaCr}_4\text{S}_8$ ” **G. Pokharel**, H. Suriya Arachchige, A. F. May, S. Calder, Tao Hong, G. Sala, G. Ehlers, D. Mandrus, A. D. Christianson, The Analysis and Measurement Services (AMS) international, Oak Ridge chapter annual student poster night presentation, October 25, 2018.
7. “Physical properties and spin excitations in the lacunar spinels AV_4S_8 (A = Ga, Ge)” **G. Pokharel**, A. Christianson, D. Mandrus, APS March Meeting, March 13–17, 2017.
<https://meetings.aps.org/Meeting/MAR17/Event/296957>
6. “Physical Properties of the cubic spinel $\text{LiGaCr}_4\text{S}_8$ ” **G. Pokharel**, A. F. May, L. Poudel, S. Calder, H. Suriya Arachchige, G. Ehlers, A. Huq, D. Mandrus, A. D. Christianson, The Analysis and Measurement Services (AMS) international, Oak Ridge chapter annual student poster night presentation, October 26, 2017.
5. “Spin excitations in the thiospinel FeCr_2S_4 ” **G. Pokharel**, H. Cao, C. R. dela Cruz, A. E. Taylor, G. Ehlers, D. Mandrus, A.D. Christianson, The Analysis and Measurement Services (AMS) international, Oak Ridge chapter annual student poster night presentation, October 16, 2016.
4. “Study of Structural, Magnetic and Electronic Properties of Spinel FeCr_2S_4 Single Crystals” **G. Pokharel**, M. Koehler, R. Mukharjee, D. Sapkota, A.D. Christianson, D. Mandrus, The Analysis and Measurement Services (AMS) international, Oak Ridge chapter annual student poster night presentation, November 19, 2015.
3. “A structural, Magnetic, and Mossbauer study of the $\text{Dy}_2\text{Fe}_{17-x}\text{Nb}_x$ solid solutions” 12th Joint Magnetism and Magnetic Materials (MMM) Conference, Jan 14-18, 2013.
2. Institute for Intelligent Systems Student Organization (IISSO) research fair-2012, University of Memphis, Memphis, TN.
1. 24th Annual Student Research Forum-2012, University of Memphis, Memphis, TN.

Collaborative Presentations

21. “Microscopic insights into the pseudo gap phase of CsV_3Sb_5 ”, J. Zheng (presenter), C. Chen, Q. Li, **G. Pokharel**, A. Salinas, S. Wilson, Z. Meng, B. Jaeck, APS March meeting- 2024. <https://meetings.aps.org/Meeting/MAR24/Session/Z03.4>
20. “Evolution of charge correlations in $\text{CsV}_3\text{Sb}_{5-x}\text{Sn}_x$ studied via synchrotron x-ray diffraction”, A. C. Salinas (presenter), B. Ortiz, **G. Pokharel**, S. G. Alvarado, S. Yuan, S. Wilson, APS March meeting- 2024. <https://meetings.aps.org/Meeting/MAR24/Session/T07.1>
19. “Fermi surface of Kagome metal ScV_6Sn_6 using high field torque magnetometry”, K. Shrestha (presenter), B. Regmi, **G. Pokharel**, S. G. Kim, S. Wilson, D. Graf, B. Magar, C. Phillips, T. Nguyen, APS March meeting- 2024. <https://meetings.aps.org/Meeting/MAR24/Session/GG05.5>
18. “Revisiting spin ice physics in the ferromagnetic Ising pyrochlore $\text{Pr}_2\text{Sn}_2\text{O}_7$ ”, A. Aczel (presenter), P. Sarte, B. Ortiz, **G. Pokharel**, S. G. Alvarado, A. May, S. Calder, L. Mangin-Thro, A. Wildes, H. Zhou, G. Sala, C.r Wiebe, S. Wilson, J. Paddison, APS March meeting- 2024. <https://meetings.aps.org/Meeting/MAR24/Session/K22.2>
17. “Study of quantum oscillations in RV_6Sn_6 Kagome magnets” C. Dhital (presenter), **G. Pokharel**, B. Wilson, D. Graf, S. Wilson, APS March meeting- 2023. <https://ui.adsabs.harvard.edu/abs/2023APS..MARS42004D/abstract>
16. “Scanning tunneling microscopy and spectroscopy imaging of a kagome metal ScV_6Sn_6 ”, S. Cheng, H. Li, **G. Pokharel**, S. Wilson, I. Zeljkovic, APS March meeting- 2023. <https://ui.adsabs.harvard.edu/abs/2023APS..MARB29003C/abstract>
15. “SANS Study of New Nanometer-sized Magnetic Structure of the Elemental Nd” L. B.-Schmitt, ...**G. Pokharel**,... A. Christianson, APS March meeting- 2023. <https://meetings.aps.org/Meeting/SES23/Session/A02.3>
14. “Hierarchical excitations from correlated spin tetrahedra on the breathing pyrochlore lattice” S. Gao (presenter), A.F May, M.H. Du, JAM Paddison, H. S. Arachchige, **G. Pokharel**, Q. Zhang, G. Ehlers, D. S. Parker, D. G Mandrus, M. B. Stone, A. D. Christianson, APS March meeting, March 15-19, 2021. <https://meetings.aps.org/Meeting/MAR22/Session/A51.3>
13. “Complex magnetic phases in the polar tetragonal intermetallic NdCoGe_3 ”, Binod K Rai (presenter), **Ganesh Pokharel**, Hasitha Suriya Arachchige, Seung-Hwan Do, Qiang Zhang, Masaaki Matsuda, Matthias Frontzek, Gabriele Sala, V Ovidiu Garlea, Andrew D Christianson, Andrew F May, APS March meeting, March 15-19, 2021.
12. “Van Hove singularity in the magnon spectrum of the antiferromagnetic quantum honeycomb lattice” G. Sala (presenter), MB Stone, B. K Rai, AF May, P. Laurell, V. Garlea, N. Butch, M. Lumsden, G. Ehlers, **G. Pokharel**, A. Podlesnyak, D. Mandrus, D.S. Parker, S. Okamoto, G. B. Halász, A. D. Christianson, APS March meeting, March 15-19, 2021.
11. “Cluster Frustration in the Breathing Pyrochlore Magnet $\text{LiGaCr}_4\text{S}_8$ ” J. Paddison (presenter), **G. Pokharel**, H. S. Arachchige, T. Williams, A. may, R. Fishman, G. Sala, S. Calder, G. Ehlers, D. Parker, T. Hong, A. Wildes, D. Mandrus, A. Christianson, APS March meeting-2021. <https://ui.adsabs.harvard.edu/abs/2021APS..MARL39002P/abstract>
10. “Observation of additional magnetic modulation vectors in the element Neodymium”, H. Suriya Arachchige(presenter), L. D. Schmitt, A. May, D. Parker, M. Bleuel, **G. Pokharel**, B. Rai, J. Paddison, W. Tian, M. Matsuda, Y. Liu, D. Mandrus, C. Batista, A. Christianson, APS March meeting-2021. <https://ui.adsabs.harvard.edu/abs/2021APS..MARR39011S/abstract>

9. “Magneto-Raman Spectroscopy on Vanadium-derived Lacunar Spinel GaV4S8” C. Barclay (presenter), D. O., Zhengguang Lu, **G. Pokharel**, H. S. Arachchige, A. Christianson, D. Mandrus, D. Smirnov, K. Thirunavukkuarasu” APS March meeting, March 4–8 2019. <https://ui.adsabs.harvard.edu/abs/2019APS..MARG70214B/abstract>
8. “Tuning the magnetic properties of NiBr₂ with cobalt doping”, H.S. Arachchige (presenter), B. Rai, **G. Pokharel**, A. May, A. Aczel, T. Williams, M. Frontzek, C. Batista, D. Mandrus, A. Christianson, APS March meeting, March 4–8 2019.
7. “Investigating the stability of incommensurate spin textures in GaV4S8” E. Clements, **G. Pokharel**, D. Mandrus, H. Srikanth, M.H. Phan, APS March meeting, March 4–8 2019.
6. “Antiferromagnetic ordering in spinel GeV4Se8”, H. S. Arachchige (presenter), **G. Pokharel**, S. Calder, A. May, A. Christianson, D. Mandrus, APS March meeting, March 5–9, 2018. <https://meetings.aps.org/Meeting/SES18/Session/D05.47>
5. “Magneto-Raman Spectroscopy on Vanadium-derived Lacunar Spinel GaV4S8”, G. Knight, Z. Lu, **G. Pokharel**, H. S. Arachchige, A. Christianson, D. Mandrus, D. Smirnov, K. Thirunavukkuarasu, APS March meeting, March 5–9, 2018. <https://ui.adsabs.harvard.edu/abs/2018APS..MARG60156K/abstract>
4. “First-Order Magnetic Transitions and Metastability in the Néel Skyrmion Lattice Host GaV4S8” E. Clements (presenter), R. Das, **G. Pokharel**, D. Mandrus, H. Srikanth, M.H. Phan, APS March meeting, March 5–9, 2018. <https://ui.adsabs.harvard.edu/abs/2018APS..MARB22011C/abstract>
3. “Magnetic, transport, and electronic properties of V-intercalated 2H-NbS₂” D. Sapkota (presenter), N. Sirica, R. Mukherjee, M. Koehler, **G. Pokharel**, P. Vilmercati, N. Mannella, D. Mandrus, APS March Meeting, March 13–17, 2017. <https://ui.adsabs.harvard.edu/abs/2017APS..MAR31002S/abstract>
2. “Magneto-Raman Spectroscopy on Metal-organic Framework Material [(CH₃)₂NH₂] Co(HCOO)₃” R. Richardson, G. Knight, Z. Lu, D. N. Smirnov, **G. Pokharel**, N. Huang, D. Mandrus, K. Thirunavukkuarasu, ANNUAL RESEARCH REPORT 2018, NATIONAL HIGH MAGNETIC FIELD LABORATORY, FL. <https://public.magnet.fsu.edu/AToH/2018>
1. “Magnetically enhanced hard-Soft, YCo₅-FeNi, nonocomposite powder prepared via high energy ball milling” **Pokharel, G.**, Shahabuddin, M., Mishra, S.R., and Wang, L., Materials Research Society, 2013 MRS Fall Meeting Exhibit, December 1-6, 2013, Boston, Massachusetts.

Awards and recognitions

My research work was featured by the Cornell High Energy Synchrotron Source (CHESS), July 2024. <https://www.chess.cornell.edu/frustrated-charge-order-and-cooperative-distortions-scv6sn6>

Heeger Fellowship Award-2024, California NanoSystems Institute (CNSI) and Materials Research Laboratory (MRL), University of California, Santa Barbara-Travel award of \$ 1000.

Academic Affiliate of University of California, Santa Barbara (UCSB): 2024-2025

Heeger Fellowship Award-2023, California NanoSystems Institute (CNSI) and Materials Research Laboratory (MRL), University of California, Santa Barbara- Travel award of \$ 1000.

UCSB Quantum Foundry and the materials I contributed to the Quantum Foundry were featured in the UCSB local magazine with news title: **Invisible to the naked eye and highly counterintuitive, the atomic-scale quantum world is a bizarre place**, UCSB magazine-2023. <https://magazine.ucsb.edu/fall-winter-2022/quantum-quest>

My research article "Phys. Rev. Lett. 125, 167201, 2020" featured as an American Physical Society (APS) featured article.

[https://journals.aps.org/prl/highlights?page=20toc_section%5B%5D = condensed – matter – and – materials](https://journals.aps.org/prl/highlights?page=20toc_section%5B%5D%20%3D%20condensed%20matter%20and%20materials)

Chancellor's fellowship 2013-2016, The University of Tennessee, Knoxville.

Colloquium Award-2015, Department of Physics and Astronomy, The University of Tennessee, Knoxville.

My presentation was highlighted with a news title: **Researcher outline challenges of funding at U of M innovation conference**, The commercial appeal, Memphis, TN -2012.

Member of American Physical Society

Member of Nepal Physical Society.

Former member of the Union of Postdocs and Academic Researchers at the University of California

Experimental Research skills

- Solid state synthesis, ball milling, annealing, sintering, tube sealing
- Single crystal growth with CVT, Flux method, Arc melting
- Neutron diffraction and inelastic neutron scattering measurements using Neutron diffractometer, Triple axis spectrometer, and Time of flight spectrometer
- X-ray diffraction, Laue diffraction
- Measurements using PPMS, MPMS, VersaLab, VSM, SEM, LCR meter
- Data analysis using different software like Origin, FullProf, GSAS, DAVE, Jana, basic Matlab, Microsoft office etc.

Peer-Review Activities

Reviewer for the following journals:

- Physical Review Letters (PRL)
- Physical Review B (PRB)
- Nature Communications (NComm)
- NPJ Quantum Materials
- Physical Review Materials (PRM)

Here are some of the manuscripts I have recently reviewed:

- Journal name: Physical Review B
Article Title: Evidence for transverse and longitudinal spin glass freezing and kagome spin configuration at low temperatures in M-type hexaferrite $\text{BaFe}_{12}\text{O}_{19}$ without any chemical substitutional disorder.
Date of Review: September, 2024
- Journal Name: Physical Review B
Article Title: Evidence for Fermi surface reconstruction in compressed CsV_3Sb_5 with stripe order.
Date of Review: July, 2024

- Journal Name: Physical Review Letter
Article Title: Evidence for Fermi surface reconstruction in compressed CsV_3Sb_5 with stripe order.
Date of Review: November, 2023
- Journal Name: Physical Review Materials
Article Title: Evolution of charge density waves from three-dimensional to quasi-two-dimensional in Kagome superconductors $\text{Cs}(\text{V}_{1-x}\text{M}_x)_3\text{Sb}_5$ ($\text{M} = \text{Nb}, \text{Ta}$).
Date of Review: April, 2023