Stanford

Cheng Peng

Associate Scientist, SLAC National Accelerator Laboratory

Publications

PUBLICATIONS

- **Physics-guided dual implicit neural representations for source separation** *MACHINE LEARNING-SCIENCE AND TECHNOLOGY*
  Ni, Y., Chen, Z., Petsch, A. N., Xu, E., Peng, C., Kolesnikov, A., Chowdhury, S., Bansil, A., Thayer, J. B., Turner, J. J.
  2025; 6 (4)
- **Order by projection in the single-band Hubbard model: A density matrix** *PHYSICAL REVIEW B*
  Li, S., Peng, C., Yu, Y., Shastry, B., Jia, C.
  2025; 112 (13)
- **Superconductivity in the lightly doped Hubbard model on the cylindrical honeycomb lattice** *PHYSICAL REVIEW B*
  Peng, C., Sheng, D. N., Jiang, H.
  2025; 111 (8)
- **Using magnetic dynamics to measure the spin gap in a candidate Kitaev material** *NPJ QUANTUM MATERIALS*
  Jiang, X., Qiu, Q., Peng, C., Jang, H., Chen, W., Jin, X., Yue, L., Lee, B., Park, S., Kim, M., Kim, H., Cai, X., Li, et al
  2025; 10 (1)
- **Synthesis of Layered Gold Tellurides AuSbTe and Au2Te3 and Their Semiconducting and Metallic Behavior.** *Inorganic chemistry*
  Pappas, E. A., Zhang, R., Peng, C., Busch, R. T., Zuo, J. M., Devereaux, T. P., Shoemaker, D. P.
  2025
- **Implicit neural representations for experimental steering of advanced experiments** *CELL REPORTS PHYSICAL SCIENCE*
  Chen, Z., Petsch, A. N., Ji, Z., Chitturi, S. R., Peng, C., Jia, C., Kolesnikov, A. I., Thayer, J. B., Turner, J. J.
  2025; 6 (1)
- **On ultrafast x-ray scattering methods for magnetism** *ADVANCES IN PHYSICS-X*
  Plumley, R., Chitturi, S. R., Peng, C., Assefa, T. A., Burdet, N., Shen, L., Chen, Z., Reid, A. H., Dakovski, G. L., Seaberg, M. H., O'Dowd, F., Montoya, S. A., Chen, et al
  2024; 9 (1)
- **Understanding the superconductivity and charge density wave interaction through quasi-static lattice fluctuations.** *Proceedings of the National Academy of Sciences of the United States of America*
  Porter, Z., Shen, L., Plumley, R., Burdet, N. G., Petsch, A. N., Wen, J., Drucker, N. C., Peng, C., Chen, X. M., Fluerasu, A., Blackburn, E., Coslovich, G., Hawthorn, et al
  2024; 121 (50): e2412182121
- **3D Heisenberg universality in the van der Waals antiferromagnet NiPS₃** *NPJ QUANTUM MATERIALS*
  Plumley, R., Mardanya, S., Peng, C., Nokelainen, J., Assefa, T., Shen, L., Burdet, N., Porter, Z., Petsch, A., Israelski, A., Chen, H., Lee, J., Morley, et al
  2024; 9 (1)
- **High-pressure characterization of Ag₃AuTe₂: Implications for strain-induced band tuning** *APPLIED PHYSICS LETTERS*

Won, J., Zhang, R., Peng, C., Kumar, R., Gebre, M. S., Popov, D., Hemley, R. J., Bradlyn, B., Devereaux, T. P., Shoemaker, D. P.
2024; 125 (21)

- **Particle-Hole Asymmetric Ferromagnetism and Spin Textures in the Triangular Hubbard-Hofstadter Model** *PHYSICAL REVIEW X*
  Ding, J. K., Yang, L., Wang, W. O., Zhu, Z., Peng, C., Mai, P., Huang, E. W., Moritz, B., Phillips, P. W., Feldman, B. E., Devereaux, T. P.
  2024; 14 (4)
- **Kitaev physics in the two-dimensional magnet NiPSe₃** *PHYSICAL REVIEW RESEARCH*
  Peng, C., Mardanya, S., Petsch, A. N., Sharma, V., Li, S., Jia, C., Bansil, A., Chowdhury, S., Turner, J. J.
  2024; 6 (3)
- **Emergence of antiferromagnetic correlations and Kondolike features in a model for infinite layer nickelates** *NPJ QUANTUM MATERIALS*
  Liu, F., Peng, C., Huang, E. W., Moritz, B., Jia, C., Devereaux, T. P.
  2024; 9 (1)
- **Machine learning-empowered study of metastable γ-CsPbI₃ under pressure and strain** *JOURNAL OF MATERIALS CHEMISTRY A*
  Han, M., Peng, C., Song, R., Ke, F., Nashed, Y. S. G., Mao, W. L., Jia, C., Lin, Y.
  2024
- **Exfoliable Transition Metal Chalcogenide Semiconductor NbSe2I2.** *Inorganic chemistry*
  Qu, K., Zhang, Y., Peng, C., Riedel, Z. W., Won, J., Zhang, R., Woods, T. J., Devereaux, T., van der Zande, A. M., Shoemaker, D. P.
  2024
- **Charge order and superconductivity in a two-band model for infinite-layer nickelates** *PHYSICAL REVIEW B*
  Peng, C., Jiang, H., Moritz, B., Devereaux, T. P., Jia, C.
  2023; 108 (24)
- **Bayesian experimental design and parameter estimation for ultrafast spin dynamics** *MACHINE LEARNING-SCIENCE AND TECHNOLOGY*
  Chen, Z., Peng, C., Petsch, A. N., Chitturi, S. R., Okullo, A., Chowdhury, S., Yoon, C., Turner, J. J.
  2023; 4 (4)
- **Capturing dynamical correlations using implicit neural representations.** *Nature communications*
  Chitturi, S. R., Ji, Z., Petsch, A. N., Peng, C., Chen, Z., Plumley, R., Dunne, M., Mardanya, S., Chowdhury, S., Chen, H., Bansil, A., Feiguin, A., Kolesnikov, et al
  2023; 14 (1): 5852
- **From Stoner to local moment magnetism in atomically thin Cr2Te3.** *Nature communications*
  Zhong, Y., Peng, C., Huang, H., Guan, D., Hwang, J., Hsu, K. H., Hu, Y., Jia, C., Moritz, B., Lu, D., Lee, J. S., Jia, J. F., Devereaux, et al
  2023; 14 (1): 5340
- **Traces of electron-phonon coupling in one-dimensional cuprates.** *Nature communications*
  Tang, T., Moritz, B., Peng, C., Shen, Z. X., Devereaux, T. P.
  2023; 14 (1): 3129
- **Enhanced superconductivity by near-neighbor attraction in the doped extended Hubbard model** *PHYSICAL REVIEW B*
  Peng, C., Wang, Y., Wen, J., Lee, Y. S., Devereaux, T. P., Jiang, H.
  2023; 107 (20)
- **A Quantum-Inspired Tensor Network Algorithm for Constrained Combinatorial Optimization Problems** *FRONTIERS IN PHYSICS*
  Hao, T., Huang, X., Jia, C., Peng, C.
  2022; 10
- **Testing the data framework for an AI algorithm in preparation for high data rate X-ray facilities**
  Chen, H., Chitturi, S. R., Plumley, R., Shen, L., Drucker, N. C., Burdet, N., Peng, C., Mardanya, S., Ratner, D., Mishra, A., Yoon, C., Song, S., Chollet, et al
  IEEE.2022: 1-9
- **Gapless spin liquid and pair density wave of the Hubbard model on three-leg triangular cylinders** *NEW JOURNAL OF PHYSICS*
  Peng, C., Jiang, Y., Wang, Y., Jiang, H.
  2021; 23 (12)

- **Precursor of pair-density wave in doping Kitaev spin liquid on the honeycomb lattice** *NPJ QUANTUM MATERIALS*
  Peng, C., Jiang, Y., Devereaux, T. P., Jiang, H.
  2021; 6 (1)
- **Doping Quantum Spin Liquids on the Kagome Lattice** *ADVANCED QUANTUM TECHNOLOGIES*
  Peng, C., Jiang, Y., Sheng, D., Jiang, H.
  2021