Stanford

Rajan Plumley

Visiting Physicist, SLAC National Accelerator Laboratory

Bio

BIO

I am a PhD Candidate at Carnegie Mellon University and Visiting Physicist at SLAC National Accelerator Laboratory and the Stanford Institute for Materials and Energy Sciences. My research focuses on using state-of-the-art X-ray facilities such as the Linac Coherent Light Source (LCLS) at SLAC to study ultra-fast dynamics in materials. I am especially interested in how X-ray speckle phenomena can be used to understand the role fluctuations play in the emergence of novel quantum phases in low-dimensional materials.

EDUCATION AND CERTIFICATIONS

- MS, Carnegie Mellon University , Physics (2022)
- BA, Washington & Jefferson College , Physics (2017)

Publications

PUBLICATIONS

- **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)

- **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

- **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

- **Speckle correlation as a monitor of X-ray free-electron laser induced crystal lattice deformation.** *Journal of synchrotron radiation*
  Plumley, R. n., Sun, Y. n., Teitelbaum, S. n., Song, S. n., Sato, T. n., Chollet, M. n., Nelson, S. n., Wang, N. n., Sun, P. n., Robert, A. n., Fuoss, P. n., Sutton, M. n., Zhu, et al
  2020; 27 (Pt 6): 1470–76

- **Compact hard x-ray split-delay system based on variable-gap channel-cut crystals** *OPTICS LETTERS*
  Sun, Y., Wang, N., Song, S., Sun, P., Chollet, M., Sato, T., van Driel, T. B., Nelson, S., Plumley, R., Montana-Lopez, J., Teitelbaum, S. W., Haber, J., Hastings, et al
  2019; 44 (10): 2582–85