

Katherine Harmon

Physical Science Research Scientist
Materials Science and Engineering

Bio

ACADEMIC APPOINTMENTS

- Physical Science Research Scientist, Materials Science and Engineering

HONORS AND AWARDS

- Maria Goeppert Mayer Fellow, Argonne National Laboratory (2021-2024)
- National Defense Science and Engineering Graduate Fellow, U.S. Department of Defense (2017-2021)
- Ryan Fellow, International Institute for Nanotechnology, Northwestern University (2017-2020)

PROFESSIONAL EDUCATION

- Ph.D., Northwestern University , Applied Physics (2021)
- B.A., University of California, Berkeley , Physics (2012)

Publications

PUBLICATIONS

- **pH-Driven Restructuring of Hydration Layers and Cation Adsorption at the Alumina-Water Interface** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Neumann, J., Kim, Y., Wang, X., Harmon, K. J., Carr, A. J., Lutzenkirchen, J., Fenter, P., Lee, S.
2026
- **Concurrent multi-peak Bragg coherent x-ray diffraction imaging of 3D nanocrystal lattice displacement via global optimization** *NPJ COMPUTATIONAL MATERIALS*
Maddali, S., Frazer, T. D., Deegan, N., Harmon, K. J., Sullivan, S. E., Allain, M., Cha, W., Dibos, A., Poudyal, I., Kandel, S., Nashed, Y. S. G., Heremans, F., You, et al
2023; 9 (1)
- **Designing silicon carbide heterostructures for quantum information science: challenges and opportunities** *MATERIALS FOR QUANTUM TECHNOLOGY*
Harmon, K. J., Deegan, N., Highland, M. J., He, H., Zapol, P., Heremans, F. J., Hruszkewycz, S. O.
2022; 2 (2)
- **Nonreciprocal interactions induced by water in confinement** *PHYSICAL REVIEW RESEARCH*
Jimenez-Angeles, F., Harmon, K. J., Trung Dac Nguyen, Fenter, P., de la Cruz, M.
2020; 2 (4)
- **Validating first-principles molecular dynamics calculations of oxide/water interfaces with x-ray reflectivity data** *PHYSICAL REVIEW MATERIALS*
Harmon, K. J., Letchworth-Weaver, K., Gaiduk, A. P., Giberti, F., Gygi, F., Chan, M. K. Y., Fenter, P., Galli, G.
2020; 4 (11)
- **Insights on the Alumina Water Interface Structure by Direct Comparison of Density Functional Simulations with X-ray Reflectivity** *JOURNAL OF PHYSICAL CHEMISTRY C*

Harmon, K. J., Chen, Y., Bylaska, E. J., Catalano, J. G., Bedzyk, M. J., Weare, J. H., Fenter, P.
2018; 122 (47): 26934-26944

- **Enhancing Tabletop X-Ray Phase Contrast Imaging with Nano-Fabrication.** *Scientific reports*
Miao, H., Gomella, A. A., Harmon, K. J., Bennett, E. E., Chedid, N., Znati, S., Panna, A., Foster, B. A., Bhandarkar, P., Wen, H.
2015; 5: 13581
- **Motionless electromagnetic phase stepping versus mechanical phase stepping in x-ray phase-contrast imaging with a compact source.** *Physics in medicine and biology*
Harmon, K. J., Miao, H., Gomella, A. A., Bennett, E. E., Foster, B. A., Bhandarkar, P., Wen, H.
2015; 60 (8): 3031-43
- **Efficient decoding of 2D structured illumination with linear phase stepping in X-ray phase contrast and dark-field imaging.** *PloS one*
Harmon, K. J., Bennett, E. E., Gomella, A. A., Wen, H.
2014; 9 (1): e87127