

Patrick Kramer

Staff Scientist, SLAC National Accelerator Laboratory

Publications

PUBLICATIONS

- **Decoding THz-Driven Dynamic Fingerprints of Ferroelectric Nanotwin Networks.** *Advanced materials (Deerfield Beach, Fla.)*
Li, X., Ross, A., Stoica, V. A., Das, S., Hazra, S., Wang, H. H., Padma, H., Hoffmann, M. C., Kramer, P., Song, S., Nelson, S., Sato, T., Zhu, et al
2026: e73118
- **Ultrafast Population and Structural Dynamics of a Ni-Bipyridine Photoredox Catalyst Reveal a Significant Deactivation Pathway.** *The journal of physical chemistry letters*
Raj, S. L., Curtolo, F., Nelson, K. J., Cagan, D. A., Hooper, R. X., Bím, D., Follmer, A. H., Ribson, R. D., Kazmierczak, N. P., McNicholas, B. J., Powers-Riggs, N., Sachs, M., Biasin, et al
2026
- **Reconciling the Different Apparent Decay Pathways for Iron(III) Tetraphenylporphyrin Chloride: Evidence for Excited State Branching.** *The journal of physical chemistry. A*
Lamb, R. M., Smith, L. E., Natan, A., Burke, J. H., Alonso-Mori, R., Gee, L. B., Kramer, P. L., McClain, T. P., Ribson, R. D., Song, S., van Driel, T. B., Penner-Hahn, J. E., Vura-Weis, et al
2025
- **The UV Photoinduced Ring-Closing Reaction of Cyclopentadiene Probed with Ultrafast Electron Diffraction.** *The journal of physical chemistry. A*
Lederer, J., Bertram, L., Huang, L., Bhattacharyya, S., Boutet, S., Cheng, X., Crane, S. W., England, R. J., Graßl, M., Heald, L., Ji, F., Kramer, P., Lam, et al
2025
- **Terahertz-field activation of polar skyrons.** *Nature communications*
Wang, H. H., Stoica, V. A., Dai, C., Paściak, M., Das, S., Yang, T., Gonçalves, M. A., Kulda, J., McCarter, M. R., Mangu, A., Cao, Y., Padma, H., Saha, et al
2025; 16 (1): 8994
- **Terahertz-Induced Tunnel Ionization Drives Coherent Raman-Active Phonon in Bismuth.** *Physical review letters*
Cheng, B., Kramer, P. L., Trigo, M., Liu, M., Uher, C., Reis, D. A., Shen, Z. X., Sobota, J. A., Hoffmann, M. C.
2025; 135 (14): 146901
- **Terahertz-Induced Tunnel Ionization Drives Coherent Raman-Active Phonon in Bismuth** *PHYSICAL REVIEW LETTERS*
Cheng, B., Kramer, P. L., Trigo, M., Liu, M., Uher, C., Reis, D. A., Shen, Z., Sobota, J. A., Hoffmann, M. C.
2025; 135 (14)
- **Three-dimensional reconstruction of THz near-fields from a LiNbO3 optical rectification source** *OPTICS EXPRESS*
Gabriel, A. E., Othman, M. A. K., Kramer, P. L., Miura, H., Hoffmann, M. C., Nanni, E. A.
2025; 33 (17): 37084-37094
- **Imaging the photochemistry of cyclobutanone using ultrafast electron diffraction: Experimental results.** *The Journal of chemical physics*
Green, A. E., Liu, Y., Allum, F., Graßl, M., Lenzen, P., Ashfold, M. N., Bhattacharyya, S., Cheng, X., Centurion, M., Crane, S. W., Forbes, R., Goff, N. A., Huang, et al
2025; 162 (18)
- **High-resolution in situ characterization of laser powder bed fusion via transmission X-ray microscopy at X-ray free-electron lasers.** *Journal of synchrotron radiation*

- Taylor, Z., Reddy, T., Fang, L., Oppermann, P., Kramer, P. L., Decker, F. J., Seaberg, M., Chollet, M., van Driel, T., Halavanau, A., Hart, P., Dayton, M., Seiboth, et al
2025
- **Observation of polarization density waves in SrTiO₃** *NATURE PHYSICS*
Orenstein, G., Krapivin, V., Huang, Y., Zhang, Z., de la Pena Munoz, G., Duncan, R. A., Nguyen, Q., Stanton, J., Teitelbaum, S., Yavas, H., Sato, T., Hoffmann, M. C., Kramer, et al
2025
 - **Deviation from Debye-Waller behavior in single crystalline freestanding NiO membranes studied via ultrafast electron diffraction** *PHYSICAL REVIEW APPLIED*
Wisser, J. J., Reid, A., Harbola, V., Luo, D., Shen, X., Kramer, P. L., Lindgren, E. R., Xia, C., Hoffmann, M. C., Lindenberg, A. M., Hwang, H., Suzuki, Y.
2025; 23 (3)
 - **Electrochemical Control of the Ultrafast Lattice Response of a Layered Semimetal.** *Advanced science (Weinheim, Baden-Wuerttemberg, Germany)*
de Quesada, F. A., Muscher, P. K., Krakovsky, E. S., Sood, A., Poletayev, A. D., Sie, E. J., Nyby, C. M., Irvine, S. J., Zajac, M. E., Luo, D., Shen, X., Hoffmann, M. C., Kramer, et al
2024: e2411344
 - **Ultrafast Symmetry Control in Photoexcited Quantum Dots.** *Advanced materials (Deerfield Beach, Fla.)*
Guzelturk, B., Portner, J., Ondry, J., Ghanbarzadeh, S., Tarantola, M., Jeong, A., Field, T., Chandler, A. M., Wieman, E., Hopper, T. R., Watkins, N. E., Yu, J., Cheng, et al
2024: e2414196
 - **Time-Resolved X-ray Emission Spectroscopy and Synthetic High-Spin Model Complexes Resolve Ambiguities in Excited-State Assignments of Transition-Metal Chromophores: A Case Study of Fe-Amido Complexes.** *Journal of the American Chemical Society*
Reinhard, M. E., Sidhu, B. K., Lozada, I. B., Powers-Riggs, N., Ortiz, R. J., Lim, H., Nickel, R., Lierop, J. v., Alonso-Mori, R., Chollet, M., Gee, L. B., Kramer, P. L., Kroll, et al
2024
 - **Multi-objective Bayesian active learning for MeV-ultrafast electron diffraction.** *Nature communications*
Ji, F., Edelen, A., Roussel, R., Shen, X., Miskovich, S., Weathersby, S., Luo, D., Mo, M., Kramer, P., Mayes, C., Othman, M. A., Nanni, E., Wang, et al
2024; 15 (1): 4726
 - **Terahertz-Driven Local Dipolar Correlation in a Quantum Paraelectric.** *Physical review letters*
Cheng, B., Kramer, P. L., Shen, Z. X., Hoffmann, M. C.
2023; 130 (12): 126902
 - **Ultrafast Dynamics of a Terahertz Dual-Fed Relativistic Electron Bunch Compressor**
Othman, M. A. K., Snively, E. C., Kozina, M. E., Kramer, P. L., Shen, X., Ji, F., Weathersby, S., Wang, X. J., Hoffmann, M. C., Nanni, E. A., IEEE
IEEE.2020
 - **Reorientation-induced Stokes shifts caused by directional interactions in electronic spectroscopy: Fast dynamics of poly(methyl methacrylate).** *The Journal of chemical physics*
Thomaz, J. E., Kramer, P. L., Fica-Contreras, S. M., Hoffman, D. J., Fayer, M. D.
2019; 150 (19): 194201
 - **Bulk-like and Interfacial Water Dynamics in Nafion Fuel Cell Membranes Investigated with Ultrafast Nonlinear IR Spectroscopy.** *The journal of physical chemistry. B*
Roget, S. A., Kramer, P. L., Thomaz, J. E., Fayer, M. D.
2019
 - **Water Dynamics in Polyacrylamide Hydrogels.** *Journal of the American Chemical Society*
Yan, C., Kramer, P. L., Yuan, R., Fayer, M. D.
2018
 - **Water Dynamics in 1-Alkyl-3-methylimidazolium Tetrafluoroborate Ionic Liquids** *JOURNAL OF PHYSICAL CHEMISTRY B*
Giammanco, C. H., Kramer, P. L., Wong, D. B., Fayer, M. D.
2016; 120 (44): 11523-11538

- **Ionic Liquid versus Li⁺ Aqueous Solutions: Water Dynamics near Bistriflimide Anions** *JOURNAL OF PHYSICAL CHEMISTRY B*
Giammanco, C. H., Kramer, P. L., Fayer, M. D.
2016; 120 (37): 9997-10009
- **Structural and Rotational Dynamics of Carbon Dioxide in 1-Alkyl-3-methylimidazolium Bis(trifluoromethylsulfonyl)imide Ionic Liquids: The Effect of Chain Length** *JOURNAL OF PHYSICAL CHEMISTRY B*
Giammanco, C. H., Yamada, S. A., Kramer, P. L., Tamimi, A., Fayer, M. D.
2016; 120 (27): 6698-6711
- **Quasi-rotating frame: accurate line shape determination with increased efficiency in noncollinear 2D optical spectroscopy** *JOURNAL OF THE OPTICAL SOCIETY OF AMERICA B-OPTICAL PHYSICS*
Kramer, P. L., Giammanco, C. H., Tamimi, A., Hoffman, D. J., Sokolowsky, K. P., Fayer, M. D.
2016; 33 (6): 1143-1156
- **Carbon dioxide in an ionic liquid: Structural and rotational dynamics** *JOURNAL OF CHEMICAL PHYSICS*
Giammanco, C. H., Kramer, P. L., Yamada, S. A., Nishida, J., Tamimi, A., Fayer, M. D.
2016; 144 (10)
- **Carbon dioxide in an ionic liquid: Structural and rotational dynamics.** *journal of chemical physics*
Giammanco, C. H., Kramer, P. L., Yamada, S. A., Nishida, J., Tamimi, A., Fayer, M. D.
2016; 144 (10): 104506-?
- **Coupling of Carbon Dioxide Stretch and Bend Vibrations Reveals Thermal Population Dynamics in an Ionic Liquid.** *journal of physical chemistry. B*
Giammanco, C. H., Kramer, P. L., Yamada, S. A., Nishida, J., Tamimi, A., Fayer, M. D.
2016; 120 (3): 549-556
- **Separation of experimental 2D IR frequency-frequency correlation functions into structural and reorientation-induced contributions.** *journal of chemical physics*
Kramer, P. L., Nishida, J., Fayer, M. D.
2015; 143 (12): 124505-?
- **Separation of experimental 2D IR frequency-frequency correlation functions into structural and reorientation-induced contributions.** *journal of chemical physics*
Kramer, P. L., Nishida, J., Fayer, M. D.
2015; 143 (12): 124505-?
- **Dynamics of water, methanol, and ethanol in a room temperature ionic liquid.** *journal of chemical physics*
Kramer, P. L., Giammanco, C. H., Fayer, M. D.
2015; 142 (21): 212408-?
- **Dynamics of water, methanol, and ethanol in a room temperature ionic liquid** *JOURNAL OF CHEMICAL PHYSICS*
Kramer, P. L., Giammanco, C. H., Fayer, M. D.
2015; 142 (21)
- **Observation and theory of reorientation-induced spectral diffusion in polarization-selective 2D IR spectroscopy.** *journal of chemical physics*
Kramer, P. L., Nishida, J., Giammanco, C. H., Tamimi, A., Fayer, M. D.
2015; 142 (18): 184505-?
- **Observation and theory of reorientation-induced spectral diffusion in polarization-selective 2D IR spectroscopy** *JOURNAL OF CHEMICAL PHYSICS*
Kramer, P. L., Nishida, J., Giammanco, C. H., Tamimi, A., Fayer, M. D.
2015; 142 (18)
- **Dynamics of dihydrogen bonding in aqueous solutions of sodium borohydride.** *journal of physical chemistry. B*
Giammanco, C. H., Kramer, P. L., Fayer, M. D.
2015; 119 (8): 3546-3559
- **Dynamics of dihydrogen bonding in aqueous solutions of sodium borohydride.** *journal of physical chemistry. B*
Giammanco, C. H., Kramer, P. L., Fayer, M. D.

2015; 119 (8): 3546-3559

- **Dynamics of dihydrogen bonding: Spectral diffusion of borohydride in water**

Giammanco, C. H., Kramer, P. L., Fayer, M. D.

AMER CHEMICAL SOC.2014

- **Ultrafast hydrogen bonding dynamics of water and alcohols in ionic liquids**

Kramer, P. L., Giammanco, C. H., Fayer, M. D.

AMER CHEMICAL SOC.2014