Stanford



Matthew Bain

Staff Scientist Laser Science, LCLS - Linac Coherent Light Source

Bio

BIO

Previous Appointments

2023 - 2025 - Associate Scientist - SLAC National Accelerator Lab - LCLS Laser Sciences Ultrafast Visible and UV Pulses Group

2019 - 2023 - Postdoctoral Research Associate - University of Southern California - Bradforth Group

CURRENT ROLE AT STANFORD

Lead for the Ultrafast Visible and UV Pulses group in the Laser Science Department of the Science Research & Development Division of LCLS

Laser Science Point of Contact and SLSO for the chemRIXS Instrument at LCLS

EDUCATION AND CERTIFICATIONS

- PhD, University of Bristol , Photochemistry (2019)
- MChem, Heriot Watt University , Chemistry (2015)

Publications

PUBLICATIONS

- **Imaging Valence Electron Rearrangement in a Chemical Reaction Using Hard X-Ray Scattering** *PHYSICAL REVIEW LETTERS*
  Gabalski, I., Green, A., Lenzen, P., Allum, F., Bain, M., Bhattacharyya, S., Britton, M. A., Champenois, E. G., Cheng, X., Cryan, J. P., Driver, T., Forbes, R., Garratt, et al
  2025; 135 (8)
- **High-Throughput Screening for Ultrafast Photochemical Reaction Discovery** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
  Bain, M., Castellanos, J., Bradforth, S. E.
  2023; 14 (44): 9864-9871
- **Nonadiabatic Coupling Effects in the 800 nm Strong-Field Ionization-Induced Coulomb Explosion of Methyl Iodide Revealed by Multimass Velocity Map Imaging and Ab Initio Simulation Studies** *JOURNAL OF PHYSICAL CHEMISTRY A*
  Crane, S. W., Ge, L., Cooper, G. A., Carwithen, B. P., Bain, M., Smith, J. A., Hansen, C. S., Ashfold, M. N. R.
  2021; 125 (44): 9594-9608
- **Role of the Perfluoro Effect in the Selective Photochemical Isomerization of Hexafluorobenzene** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
  Cox, J. M., Bain, M., Kellogg, M., Bradforth, S. E., Lopez, S. A.
  2021; 143 (18): 7002-7012

- **Ultraviolet photochemistry of ethane: implications for the atmospheric chemistry of the gas giants** *CHEMICAL SCIENCE*
  Chang, Y., Yang, J., Chen, Z., Zhang, Z., Yu, Y., Li, Q., He, Z., Zhang, W., Wu, G., Ingle, R. A., Bain, M., Ashfold, M. N. R., Yuan, et al
  2020; 11 (19): 5089-5097
- **Quantifying rival bond fission probabilities following photoexcitation: C-S bond fission in t-butylmethylsulfide** *CHEMICAL SCIENCE*
  Bain, M., Hansen, C. S., Karsili, T. N., Ashfold, M. N. R.
  2019; 10 (20): 5290-5298
- **Exploring the Dynamics of the Photoinduced Ring-Opening of Heterocyclic Molecules** *JOURNAL OF PHYSICAL CHEMISTRY LETTERS*
  Ashfold, M. N. R., Bain, M., Hansen, C. S., Ingle, R. A., Karsili, T. N. V., Marchetti, B., Murdock, D.
  2017; 8 (14): 3440-3451
- **Ultraviolet photochemistry of 2-bromothiophene explored using universal ionization detection and multi-mass velocity-map imaging with a PImMS2 sensor** *JOURNAL OF CHEMICAL PHYSICS*
  Ingle, R. A., Hansen, C. S., Elsdon, E., Bain, M., King, S. J., Lee, J. L., Brouard, M., Vallance, C., Turchetta, R., Ashfold, M. R.
  2017; 147 (1): 013914