Stanford

James M Baxter

Associate Scientist, SLAC National Accelerator Laboratory

Bio

BIO

Interested in understanding small things that move quickly:

- Ultrafast crystallography for protein and small-molecule dynamics

- Ultrafast microscopy and spectroscopy of proteins and materials

- Quantum imaging and quantum X-ray science

EDUCATION AND CERTIFICATIONS

- MPhys, University of Sheffield , Chemical Physics (2017)
- PhD, Imperial College London (2020)

Publications

PUBLICATIONS

- **Serial-femtosecond crystallography reveals how a phytochrome variant couples chromophore and protein structural changes** *SCIENCE ADVANCES*
  Sauthof, L., Szczepek, M., Schmidt, A., Bhowmick, A., Dasgupta, M., Mackintosh, M. J., Gul, S., Fuller, F. D., Chatterjee, R., Young, I. D., Michael, N., Heyder, N., Bauer, et al
  2025; 11 (22): eadp2665

- **Power Density Titration of Reversible Photoisomerization of a Fluorescent Protein Chromophore in the Presence of Thermally Driven Barrier Crossing Shown by Quantitative Millisecond Serial Synchrotron X-ray Crystallography.** *Journal of the American Chemical Society*
  Baxter, J. M., Hutchison, C. D., Fadini, A., Maghlaoui, K., Cordon-Preciado, V., Morgan, R. M., Agthe, M., Horrell, S., Tellkamp, F., Mehrabi, P., Pfeifer, Y., Müller-Werkmeister, H. M., von Stetten, et al
  2024; 146 (24): 16394-403

- **Coexistence of Incoherent and Ultrafast Coherent Exciton Transport in a Two-Dimensional Superatomic Semiconductor.** *The journal of physical chemistry letters*
  Baxter, J. M., Koay, C. S., Xu, D., Cheng, S. W., Tulyagankhodjaev, J. A., Shih, P., Roy, X., Delor, M.
  2023: 10249-10256

- **Optical Imaging of Ultrafast Phonon-Polariton Propagation through an Excitonic Sensor.** *Nano letters*
  Cheng, S. W., Xu, D., Su, H., Baxter, J. M., Holtzman, L. N., Watanabe, K., Taniguchi, T., Hone, J. C., Barmak, K., Delor, M.
  2023

- **Optical control of ultrafast structural dynamics in a fluorescent protein.** *Nature chemistry*
  Hutchison, C. D., Baxter, J. M., Fitzpatrick, A., Dorlhiac, G., Fadini, A., Perrett, S., Maghlaoui, K., Lefevre, S. B., Cordon-Preciado, V., Ferreira, J. L., Chukhutsina, V. U., Garratt, D., Barnard, et al
  2023

- **Ultrafast imaging of polariton propagation and interactions** *NATURE COMMUNICATIONS*
  Xu, D., Mandal, A., Baxter, J. M., Cheng, S., Lee, I., Su, H., Liu, S., Reichman, D. R., Delor, M.
  2023; 14 (1): 3881

- **Observation of Cation Chromophore Photoisomerization of a Fluorescent Protein Using Millisecond Synchrotron Serial Crystallography and Infrared Vibrational and Visible Spectroscopy** *JOURNAL OF PHYSICAL CHEMISTRY B*
  Baxter, J. M., Hutchison, C. D. M., Maghlaoui, K., Cordon-Preciado, V., Aller, P., Butryn, A., Axford, D., Horrell, S., Owen, R. L., Storm, S. L. S., Devenish, N. E., van Thor, J. J.
  2022; 126 (45): 9288-9296

- **Light activation of Orange Carotenoid Protein reveals bicycle-pedal single-bond isomerization** *NATURE COMMUNICATIONS*
  Chukhutsina, V. U., Baxter, J. M., Fadini, A., Morgan, R. M., Pope, M. A., Maghlaoui, K., Orr, C. M., Wagner, A., van Thor, J. J.
  2022; 13 (1): 6420

- **The smfBox is an open-source platform for single-molecule FRET** *NATURE COMMUNICATIONS*
  Ambrose, B., Baxter, J. M., Cully, J., Willmott, M., Steele, E. M., Bateman, B. C., Martin-Fernandez, M. L., Cadby, A., Shewring, J., Aaldering, M., Craggs, T. D.
  2020; 11 (1): 5641

- **Democratizing Single-Molecule FRET: An Open-Source Microscope for Measuring Precise Distances and Biomolecular Dynamics**
  Ambrose, B., Baxter, J., Cully, J., Willmott, M., Bateman, B. C., Steele, E., Cadby, A. J., Shewring, J., Aaldering, M., Craggs, T. D.
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