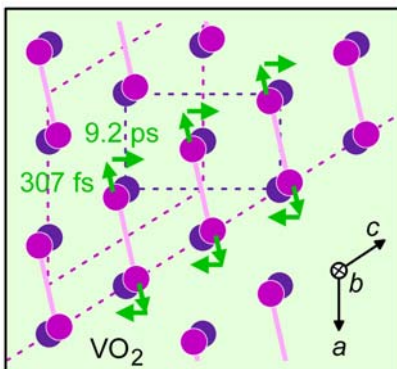


Munich-Centre for Advanced Photonics (MAP)

Doktorarbeit / PhD Thesis

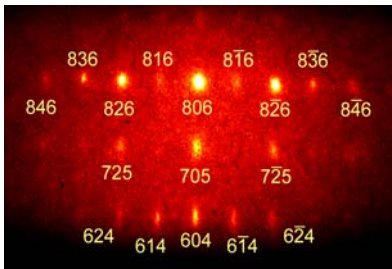
Ultrafast Electron Diffraction



Baum, Yang, Zewail,
Science 318, 788 (2007).

Join ultrafast science! We investigate the motion of atoms and electrons during macroscopic changes in matter. The relevant length and time scales are *picometer* and *femtoseconds*; electrons can move as fast as within *attoseconds*. With electron diffraction, we can visualize atomic-scale motions in all four dimensions of space and time – to make a ‘movie’ of what happens during processes like phase transformations, chemical reactions, and electronic transitions in solids.

Your task will be the application of our world-leading temporal and spatial resolutions to questions of interest in chemistry, condensed matter physics, and attosecond science. Systems to study, that are available, include dye-covered solar cells, nonlinear optical materials, molecular crystals, nanostructures, and biomolecules, depending on your interest.



Working with us involves state-of-the-art femtosecond laser technology, electron optics, detector electronics, condensed matter and molecular physics. Yet all experiments are table-top and will be operated by yourself and our small team. The research is part of the excellence cluster "Munich Centre for Advanced Photonics" (MAP) and is located at fully established labs at the LMU in Garching.

$$S(hkl) = \sum_j f_j \exp \left[-2\pi i \left(\frac{h}{a} x_j + \frac{k}{b} y_j + \frac{l}{c} z_j \right) \right]$$

We require enthusiasm for experimental work, scientific thinking, and excellent grades. Please contact us with a CV! (gerne auch auf deutsch)

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