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Fundamental questions
Elemental answers



Showcasing research from the Ultrafast Imaging Lab at the University of Nebraska and the SLAC National Accelerator Laboratory.

Photo-induced structural dynamics of *o*-nitrophenol by ultrafast electron diffraction

This paper captures structural rearrangements triggered by light-induced proton transfer in *o*-nitrophenol using ultrafast electron diffraction. Our research explores the conversion of light into chemical and mechanical energy at the single-molecule level, utilizing femtosecond laser pulses to excite molecules and synchronized electron pulses to probe structural changes with sub-Angstrom resolution. Our measurements reveal the nuclear motions that drive structural transformations and photoproducts formation in photoexcited molecules. These insights enhance our understanding of photo reactivity and the underlying reaction mechanisms.

As featured in:



See J. P. F. Nunes, T. J. Martinez, X. J. Wang, M. Centurion *et al.*, *Phys. Chem. Chem. Phys.*, 2024, **26**, 17991.