

Abstract Submitted
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Imaging CS₂ Molecules in Intense Laser Fields with Ultrafast Electron Diffraction¹ JIE YANG, MARTIN CENTURION, Univ of Nebraska - Lincoln — It has been previously demonstrated that ultrafast electron diffraction from aligned molecules (UEDAM) can resolve ground state molecular structures with atomic resolution. Here we use UEDAM to investigate the dynamics in carbon disulfide (CS₂) following the interaction with an intense femtosecond IR laser pulse. The atomic positions in transient states are imaged with 0.03Å precision and 1ps temporal resolution. Alignment, structural deformation and dissociation are observed in molecular images under different laser intensities. This proof-of-principle work demonstrates the capability of studying molecular dynamics with high spatial and temporal resolution using UEDAM.

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Jie Yang
Univ of Nebraska - Lincoln

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