3D Imaging of Small Molecules Using X-ray Free-Electron Lasers

Initiative: Forschung mit Freie-Elektronen-Lasern: Peter Paul Ewald-Fellowships am LCLS in Stanford

Bewilligung: 07.07.2013

Laufzeit: 3 Jahre

Small molecules are associated with rich quantum phenomena and ultrafast chemical processes. X-ray Free-electron lasers (FELs) provide a unique opportunity to image their dynamics at atomic resolution and ultrafast time scales. In this project, new imaging methods of FEL diffraction and photoelectron holography, as well as other potential methods, will be developed to image small molecules in the gas phase. A set of theoretical tools in the framework of coherent diffraction imaging will be developed in order to guide experimental design and to analyze measured data. This study will form the basis to visualize and investigate processes of gas-phase chemical reactions in the near future. Host is the Stanford PULSE Institute at SLAC National Accelerator Laboratory.

Projektbeteiligte

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