Simulation of molecular dynamics in reaction microscopes

At the free-electron laser in Hamburg (FLASH) a reaction microscope (REMI) is used to study the dynamics of atoms and small molecules following photoexcitation. With this setup, the momenta of charged fragments (ions and electrons) are measured in coincidence, allowing for detailed insights into molecular states and geometries.

We use a Python program to simulate the trajectories of the charged particles and predict the expected detector images in the REMI. Within this project this code will be further developed to include also the simulation of molecular geometry changes on the experimental outcome. The project offers a great opportunity to learn about atomic and molecular physics experiments at FELs, advanced experimental techniques and gain experience in Python programming.

Group

FS-FL-O

Project Category

A4. Development of experimental techniques

Special Qualifications

Python

DESY Site

Hamburg

Primary author: FRUEHLING, Ulrike (FS-FLASH-O (FLASH Scientific User Operation)) **Presenter:** FRUEHLING, Ulrike (FS-FLASH-O (FLASH Scientific User Operation))