

Investigations of ultrafast dynamical processes in highly charged matter using computer simulations

X-ray free-electron lasers (XFELs) are novel tools to investigate the properties of matter. They generate high intensity and ultrashort (i.e., tens of femtosecond duration) x-ray pulses allowing one to investigate processes with femtosecond resolution experimentally. Such pulses initiate, typically via significant ionization, complex ultrafast dynamics which leads to the need of theoretical tools to understand and interpret the experimental results. Within the CFEL-DESY Theory group, such computer simulation tools are being developed.

In this project, you will have the opportunity to gain insight into contemporary computer simulation methodologies dealing with XFEL-driven matter. The project goes beyond running established computer programs, i.e., you will join the developers exploring new modelling concepts, in this way acquiring cutting-edge skills required for research in the computational sciences.

Group

FS-CFEL-3

Project Category

A6. Theory and computing

Special Qualifications

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