

## Modelling of nonlinear light up-conversion from intense femtosecond laser pulses

The interaction of intense femtosecond light pulses with a gaseous medium gives rise to highly nonlinear processes such as harmonic generation, where the initial frequency of a laser can be up-converted. The CFEL-ATTO group uses this technique to produce one of the shortest ultraviolet (UV) light pulses to date. Such pulses allow us to investigate in real-time how bio-relevant molecules react upon UV excitation. In this project you will be part of a team developing numerical tools for reproducing the experimental conditions for generating few-femtosecond UV pulses. You will also explore a large array of parameters in order to optimize specific properties of the UV pulses such as spectrum, energy and duration. These conditions will be tested in the CFEL-ATTO laboratory and the resulting UV pulses will be used for investigating ultrafast molecular dynamics.

### Field

A5: Lasers and optics (methodology oriented)

### DESY Place

Hamburg

### DESY Division

FS

### DESY Group

FS-ATTO

### Special Qualifications:

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