

In the group of Molecular- and Nanophysics (www.nanophysics.uni-freiburg.de) we are looking for motivated students for a

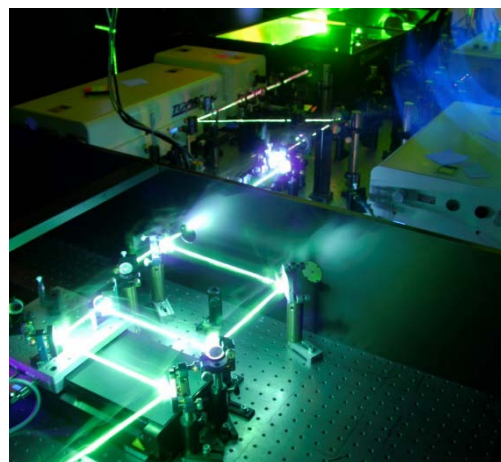


Bachelor/Master/Teacher Graduate Thesis

to work in the field of

Coherent Nonlinear Extreme Ultraviolet Spectroscopy

Coherent nonlinear spectroscopy is a very powerful tool for studying the dynamics and structure of complex quantum systems. It is readily used throughout the whole infrared and visible spectrum. Our goal is to develop experimental techniques for coherent nonlinear spectroscopy at extreme ultraviolet (XUV) wavelengths (10-200 nm). Therefore we combine the powerful technique of phase-modulation of femtosecond laser pulse-trains [1] with subsequent high harmonic generation in state of the art XUV light sources [2]. For this we use large scale facilities like the seeded free-electron laser FERMI or laboratory based tabletop High Harmonic Generation sources.



We are looking for motivated BSc/MSc/Teacher students to join our young team of typically three to five people. You should have a strong interest in experimental Atomic and Molecular Physics. Experience in the use of lasers and high-vacuum equipment is advantageous. We offer different projects related to the setup of **optics equipment** (e.g., for phase modulation of very intense few cycle infrared pulses), the operation of **atomic and molecular beam machines** (e.g., a cryogenic helium source and a warm molecular beam source), the participation at future **measurement times at FERMI** and the UV pump-probe measurements of **organic molecules** in atomic beams.

[1] A. Wituschek, et al., Opt. Lett., OL **44**, 943–946 (2019)

[2] A. Wituschek, et al., arXiv:1906.07112 (2019)

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