www.eli-laser.eu

Student's work theme (PhD)

Towards XUV nonlinear optics

The thesis will focus on the development of XUV sources capable of driving nonlinear XUV pump - XUV probe experiments opening a new endeavour for atomic physics and physical chemistry in particular. Such experiments are still beyond the reach of most research labs. The few pioneering experiments performed in the field of XUV nonlinear optics so far focused on taking advantage of particular conditions to increase the signal to detectable levels (using material resonances etc.).

The necessary condition for XUV nonlinear physics relies on XUV intensity on target. At ELI Beamlines, we plan to approach the XUV intensity increase from several directions: by adopting the HHG process to large laser driver, using nonlinear and parametric processes during the HHG itself and controlling the spatio-temporal coupling, the topics that currently strongly resonate in the HHG community.

Supervisor
Ondřej Hort, Ph.D. Ondrej.Hort@eli-beams.eu

Consultant
prof. Ing. Ivan Richter, Dr. Ivan.Richter@fjfi.cvut.cz