



19th November 2015 - 13:00 h
CFEL – Building 99, seminar room I+II (ground floor)

Jens Limpert

- 1) Friedrich-Schiller-Universität Jena, Abbe Center of Photonics, Institute of Applied Physics, Jena
- 2) Helmholtz-Institute Jena
- 3) Fraunhofer Institute for Applied Optics and Precision Engineering, Jena
- 4) Active Fiber Systems GmbH, Jena

High photon flux and repetition rate table-top coherent EUV sources based on ultrashort pulse fiber lasers

Tabletop sources of coherent extreme ultraviolet to soft x-ray radiation have been enabled by high harmonic generation (HHG) of ultrashort pulse lasers. Due to their enormous potential to address a plethora of applications they have gained increased attention, in particular, as an alternative to large-scale facilities such as synchrotrons or free electron lasers. Ti:Sapphire based laser systems have been the workhorse in this field for decades, but are limited in repetition rate and average power. On the other hand, in recent years it has been widely accepted that fostering applications in fields such as photoelectron spectroscopy and microscopy, coincidence detection or coherent diffractive imaging requires high repetition rate and high photon flux HHG sources.

In this presentation recent developments in realizing the demanding requirement of producing a high photon flux and repetition rate at the same time will be reviewed. Particular emphasize will be put on suitable ultrashort pulse and high average power lasers, which will directly drive harmonic generation to unprecedented flux in the EUV. Recent achievements will be discussed and underlined by first applications.