Contribution ID: **46** Type: **not specified**

SP4: Progress on the AXSIS Attosecond X-Ray Facility

Friday 15 July 2016 09:49 (3 minutes)

We present an overview of progress towards the development of the Frontiers in Attosecond Xray Science: Imaging and Spectroscopy (AXSIS) facility, including layouts of the facility, construction updates and progress in the machine design.

Summary

Determining evolution of electronic, atomic and molecular structure on attosecond timescales holds tremendous promise for solving issues fundamental to human progress in energy, medicine and technology. Existing machines approaching these capabilities based on free-electron lasers powered by linear accelerators have so far been limited to the femtosecond regime, preventing resolution of critical details of electronic structure. AXSIS is designed to take a large step towards providing compact accelerators and x-ray sources that push the temporal resolution to attosecond timescales providing measurement capabilities with a focus on understanding biological functions such as photosynthesis. Our approach to the device design parallels that of conventional free-electron lasers, but is based on an accelerator fully powered by terahertz radiation and an optical undulator. I will give an update on the progress of the facility construction and on various components such as terahertz-driven electron guns.

Primary author: Dr MATLIS, Nicholas (DESY)

Co-authors: Dr FALLAHI, Arya (DESY); Dr KÄRTNER, Franz (DESY)

Presenter: Dr MATLIS, Nicholas (DESY)

Session Classification: Session 3: Beam Dynamics and Photon Sources