



Contribution ID: 133

Type: **talk**

Performance of the prototype THz-driven electron gun for the AXSIS project.

Wednesday 27 September 2017 18:00 (30 minutes)

The AXSIS project (Attosecond X-ray Science: Imaging and Spectroscopy) is aiming to develop a THz driven compact X-ray source for applications e.g. in chemistry and biology by using the ultrafast coherent diffraction imaging and spectroscopy. The key components of AXSIS are the THz driven electron gun and THz-driven dielectric loaded linear accelerator as well as an inverse Compton scattering scheme for the X-rays production. This paper is focused on the prototype of the THz driven electron gun which is capable to accelerate electrons up to tens of keV. Such a gun was manufactured and tested at the test-stand at the CFEL at DESY. Due to variations in gun fabrication and generation of THz-fields the gun is not exactly operated at design parameters. Extended simulations have been performed to understand the experimentally observed performance of the gun. A detailed comparison between simulations and experimental measurements is presented in this paper.

Author: Dr VASHCHENKO, Grygorii (DESY)

Co-authors: MARCHETTI, Barbara (DESY); Dr ZHOU, Chun (DESY); Prof. KAERTNER, Franz (DESY, Center for Free-Electron Laser Science); Dr GALAYDYCH, Kostyantyn (DESY); Dr FAKHARI, Moein (DESY); Dr MATLIS, Nicholas (DESY); Dr ASSMANN, Ralph (DESY); Mr DORDA, Ulrich (DESY); Dr QIAO, Wenchao (DESY); Dr FALLAHI, arya (CFEL); Dr VINATIER, thomas (DESY)

Presenter: Dr VASHCHENKO, Grygorii (DESY)

Session Classification: WG3_Parallel

Track Classification: WG3 - Electron Beams from Electromagnetic Structures, Including Dielectric and Laser-driven Structures