



Contribution ID: 288 Contribution code: MOAI02

Type: **Invited Oral Presentation**

Commissioning of Echo-Enabled Harmonic Generation at the DELTA Storage Ring

Monday 19 August 2024 09:10 (10 minutes)

Echo-enabled harmonic generation (EEHG) has been proposed as a seeding method for free-electron lasers but can also be employed to generate ultrashort radiation pulses at electron storage rings. With a twofold laser-electron interaction in two undulators (the modulators), each followed by a magnetic chicane, an electron phase space structure with a high harmonic content is produced, which gives rise to coherent emission of radiation at short wavelengths. The duration of the coherently emitted radiation in a third undulator (the radiator) is given by the laser pulse lengths. Thus, the EEHG pulses can be three orders of magnitude shorter and still more intense than conventional synchrotron radiation. At the 1.5-GeV synchrotron light source DELTA at TU Dortmund University, the worldwide first implementation of EEHG at a storage ring was achieved by reconfiguring an electromagnetic undulator. First commissioning results are presented.

Footnotes

Funding Agency

Primary author: KHAN, Shaukat (TU Dortmund University)

Presenter: KHAN, Shaukat (TU Dortmund University)

Session Classification: First Lasing, New FEL projects and Facility Reports

Track Classification: First Lasing