Contribution ID: **858** Contribution code: **TUPL097** Type: **Poster Presentation**

Simulation studies on an XUV high-gain FEL oscillator at FLASH

Tuesday, 9 May 2023 16:30 (2 hours)

Externally seeded high-gain free electron lasers (FELs) are capable of providing fully coherent radiation with high shot-to-shot stability at wavelengths down to the soft X-ray range.
However, present seed laser sources are not suitable for the generation of short wavelength FEL radiation at high repetition rates. As a result, such setups have been unable to make use of the full repetition rate of superconducting machines.
Cavity-based FELs have been proposed as one possible way to overcome these limitations, allowing to combine short wavelengths and high repetition rates, while preserving the full coherence.
We present simulation studies for such a high-gain FEL oscillator planned for FLASH, which is aimed at the generation of fully coherent radiation at 13.5 nm and the repetition rate of 3 MHz. Achieving bunching on that wavelength would make it possible to generate fully coherent radiation at much shorter wavelengths with the use of harmonic conversion schemes.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary authors: ASATRIAN, Margarit (University of Hamburg); FERRARI, Eugenio (Deutsches Elektronen-Synchrotron); HILLERT, Wolfgang (University of Hamburg); MILTCHEV, Velizar (University of Hamburg); PARASKAKI, Georgia (Deutsches Elektronen-Synchrotron)

Presenter: ASATRIAN, Margarit (University of Hamburg)

Session Classification: Tuesday Poster Session

Track Classification: MC2: Photon Sources and Electron Accelerators: MC2.A06: Free Electron Lasers