



Contribution ID: 112 Contribution code: MOA03

Type: **Contributed Oral**

## **Attoseconds at Harmonics at the European XFEL: First Results at SASE3**

*Monday, 22 August 2022 09:46 (5 minutes)*

We report on the first observation of short, single-spike events generated at the SASE3 beamline of European XFEL via the “attosecond at harmonics method”. The approach was first proposed in [1]. We created bunching in the linear regime at around 0.5 keV and then, after bunching optimization by means of a magnetic chicane, we amplified the 4th harmonic bunching with a part of the undulator set to 2 keV. Due to the non-linear transformation of the bunching during the harmonic jump, radiation generated using this scheme occasionally exhibits single spike spectra (about a percent of the shots, which makes it attractive to use the method at high repetition-rate FELs). We expect those to correspond to single spikes in time-domain. We replicated the experiment numerically with the help of the GENESIS code.

### **I have read and accept the Privacy Policy Statement**

Yes

**Primary authors:** TREBUSHININ, Andrei (European XFEL GmbH); GELONI, Gianluca (European XFEL GmbH); SERKEZ, Svitozar (European XFEL GmbH); MERCURIO, Giuseppe (European XFEL GmbH); GERASI-MOVA, Natalia (European XFEL GmbH); GUETG, Marc (Deutsches Elektronen-Synchrotron); SCHNEIDMILLER, Evgeny (Deutsches Elektronen-Synchrotron)

**Presenter:** TREBUSHININ, Andrei (European XFEL GmbH)

**Session Classification:** First lasing

**Track Classification:** First lasing