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## Virtual photon pulse characterisation using machine learning methods

*Thursday, 11 May 2023 16:30 (2 hours)*

The use of fast computational tools is important in the operation of X-ray free electron lasers, in order to predict the output of diagnostics when they are either destructive or unavailable. Physics-based simulations can be computationally intensive to provide estimates on a real-time basis. This proposed work explores the use of machine learning to provide operators with estimates of key photon pulse characteristics related to beam pointing. A data pipeline is set up and the method is applied to the SASE1 undulator line at the European XFEL. This case study evaluates the performance of the model for different amounts of training data.

### Funding Agency

### Footnotes

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

Yes

**Primary authors:** GRECH, Christian (Deutsches Elektronen-Synchrotron); JAFARINIA, Farzad (Deutsches Elektronen-Synchrotron); GELONI, Gianluca (European XFEL GmbH); GUETG, Marc (Deutsches Elektronen-Synchrotron); GUEST, Trey (European XFEL GmbH)

**Presenter:** JAFARINIA, Farzad (Deutsches Elektronen-Synchrotron)

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