

Virtual X-Ray Pulse Characterisation at the European XFEL

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Virtual diagnostics involves using fast computational tools that can predict the output of a diagnostic when it is unavailable. One work in this direction proposes the use of ML learning methods at the European XFEL's SASE1 beamline to predict X-ray properties such as beam pointing using undulator electron properties. Such an approach is promising for providing accurate knowledge on X-ray pulses of high-repetition rate XFELs. Another application for hard X-ray self-seeding operation uses a machine learning classifier to identify crystal reflections and determine the seeding energy.

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