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Simulation Studies of Superconducting Afterburner Operation at SASE2 Beamline of European XFEL

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European XFEL is a multi-beamline x-ray free-electron laser (FEL) user facility driven by a superconducting accelerator with a nominal photon energy range from 250 eV to 25 keV. An afterburner undulator based on superconducting undulator technology is currently being planned to enable extension of the photon energy range towards harder x-rays. This afterburner undulator would be installed downstream of the already operating SASE2 FEL beamline, emitting at the fundamental or at a harmonic of the upstream SASE2 undulator. In this contribution we present a first simulation study of the impact of undulator mechanical tolerances for operation of the afterburner undulator at the fundamental of SASE2.

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