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Towards a superconducting undulator afterburner for the European XFEL

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We propose to develop, characterize and operate a superconducting undulator (SCU) afterburner consisting of 5 undulator modules (1 module = 2 times SCU coil of 2 m length and 1 phase shifter) at the SASE2 hard X-ray beamline of European XFEL. This afterburner has the potential to produce an output of more than 1010 ph/pulse at photon energies above 30 keV. The project is divided into the production of a pre-series prototype module and a small-series production of 5 modules. Central goals of this R&D activity are: the demonstration of the functionality of SCUs at a X-ray FEL, the set up of the needed infrastructure to characterize and operate SCUs, the industrialization of such undulators and the reduction of the price per module

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