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Magnetic characterizations of the APPLE –X undulators for SABINA

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SABINA (Source of Advanced Beam Imaging for Novel Applications) is a new IR/THz FEL source under construction at the INFN*Laboratori Nazionali di Frascati (LNF). The FEL will be driven by the SPARC_LABlinac, a normal conducting linear accelerator delivering high-brightness beams generated in a photo catode gun. The beam peak current is increased by compression in velocity bunching regime, in order to drive the SABINA single-pass amplifier, designed to operate in the 10-100 THz spectral range. The amplifier, consisting of three Apple-X undulator modules, will deliver pulse energies of tens of microjoule with variable polarisation. The undulators received at LNF in 2023, were designed and realized by KYMA*. In this contribution we present a summary of the magnetic characterization of the three devices. The measured parameters are in good agreement with the design values.

Footnotes

*INFN-LNF: Istituto Nazionale di Fisica Nucleare –Laboratori Nazionali di FrascatiSPARC_LAB: Sources for Plasma Accelerators and Radiation Compton with Laser And Beam***KYMA S.p.A., and KYMA Tehnologija doo

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