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Intra-undulator magnets for the SABINA THz FEL line: magnets design, manufacturing and measurements

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In the framework of the SABINA project (Source of Advanced Beam Imaging for Novel Applications), a new Free Electron Laser line will be realized at the Laboratori Nazionali di Frascati (LNF). It will be based in the SPARC_LAB laboratory with the purpose to supply radiation in the THz/MIR range to external user. The line layout foresees two correctors between the three APPLE-X undulators devoted to providing angular and position offset correction to the beam aiming to maximize the efficiency of the FEL process. They will steer the electron beam both in the X and Y axis at the mrad level, and they will be integrated with Beam Position Monitors to perform the trajectory correction and the position monitoring at the same point. This paper presents the magnetic design of the two correctors performed by OPERA 3D software, the mechanical design, the manufacturing together with the magnetic measurement performed at the magnetic laboratory facility in LNF using a Hall probe system.

Footnotes

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