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Effects of new SIRIUS's IVUs on electron beam dynamics

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Recently, two SIRIUS hard X-ray beamlines, EMA and PAINEIRA, were upgraded by replacing their previous insertion devices (IDs) with SIRIUS's first in-vacuum undulators (IVUs). These new IDs have a period of 18.5 mm and can achieve a peak magnetic field of 1.24 T at a minimum gap of 4.3 mm. This paper reports on the effects of these new light sources on the electron beam, including static and dynamic orbit distortions, impacts on optics, injection efficiency, and changes in the storage ring's equilibrium parameters.

Footnotes

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Author: ASCENÇÃO, Gabriel (Brazilian Synchrotron Light Laboratory)

Co-authors: LIU, Lin (Brazilian Synchrotron Light Laboratory); VELLOSO, Matheus (Brazilian Synchrotron Light Laboratory); ALVES, Murilo (Brazilian Synchrotron Light Laboratory); LUIZ, Sérgio (Brazilian Synchrotron Light Laboratory)

Presenter: ASCENÇÃO, Gabriel (Brazilian Synchrotron Light Laboratory)

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