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Intrabeam scattering in SRF "SKIF" storage ring

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SKIF (Russian acronym for Siberian Circular Photon Source) –is a new fourth generation synchrotron light source under construction in Novosibirsk, Russian Federation.
One of the most important characteristics of the synchrotron radiation source SRF "SKIF", which in turn determines its brightness, is the ultra-low emittance of the electron beam, which depends on the operating regime and parameters of the storage ring: the intensity of the electron beam, the insertion devices parameters, the coupling coefficient of linear betatron oscillations, the elongation of the bunches, etc. Intrabeam scattering (IBS) is a collective effect that causes bunch volume inflation and brightness decrease for high intensity beams. Described in this work are the results of study of IBS impact on beam emittance, energy spread, Touschek lifetime and geometrical brightness for different operating regimes of the SRF "SKIF"storage ring.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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