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Touschek effect in Super Charm Tau factory

Wednesday 4 June 2025 16:00 (2 hours)

Super Charm Tau factory is a proposed electron-positron double ring collider with crab waist collision scheme operating in wide beam energy range from 1.5 GeV to 3.5 GeV with peak luminosity of 10ˆ35 cmˆ(-2) sˆ(-1). The polarized electron source and three Siberian Snakes provide 80% longitudinally polarized electron beam at 2 GeV. Superconducting wigglers decrease damping times, effects of intra-beam scattering and increase Touschek beam lifetime, particularly at low energy.
This work presents studies of the Touschek effect in SCTF, as well as the results of a simulation of Touschek scattering, MOGA optimization of local momentum acceptance, and an investigation into the dependence of the dynamic aperture and the Touschek lifetime on the average orbit error.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

Funding Agency

Author: Mr SKAMAROKHA, Mikhail (Synchrotron Radiation Facility; Budker Institute of Nuclear Physics)

Presenter: Mr SKAMAROKHA, Mikhail (Synchrotron Radiation Facility; Budker Institute of Nuclear Physics)

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