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Simulation studies of laser cooling for the Gamma Factory proof-of-principle experiment at the CERN SPS

Monday, 20 May 2024 16:00 (2 hours)

The proof-of-principle (PoP) experiment at the Super Proton Synchrotron (SPS) at CERN aims at demonstrating laser cooling of high energy Li-like Pb79+ in a synchrotron. First laser cooling simulations with realistic laser and beam parameters of the Gamma Factory proof-of-principle experiment (PoP) in the Super Proton Synchrotron (SPS) at CERN are presented. Furthermore, we investigate the expected cooling performance for various laser-pulse types, such as Fourier-limited and continuous wave lasers, and compare their performance metrics such as emittance reduction and the required laser power.

Footnotes

Funding Agency

Paper preparation format

LaTeX

Region represented

Europe

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