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Simulations of bunch length reduction techniques in the SLS booster

Monday 2 June 2025 16:00 (2 hours)

Modern injection schemes for light sources seek to explore the full 6D phase space in order to find creative ways of top-up injection with minimal perturbation to the stored beam. The longitudinal injection scheme is considered for the SLS 2.0 storage ring and, hence, the longitudinal profile of the injected beam becomes highly relevant for the injection efficiency. We simulate possible ways of reducing the bunch length in the SLS booster synchrotron. The feasibility of increasing the total RF voltage by installing additional or different RF cavities is considered. Furthermore, we simulate the impact of pulsed- or oscillating RF voltages and phases in order to compress the beam longitudinally at the expense of an increased energy spread.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

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