Contribution ID: **114** Contribution code: **TUP086** Type: **Poster Presentation**

Simulations of CSR and LSC induced microbunching in the presence of a laser heater

Tuesday 12 August 2025 16:00 (2 hours)

We present a study of microbunching amplification in linear accelerators, focusing on the combined effects of coherent synchrotron radiation (CSR) and longitudinal space charge (LSC). We also investigate the role of a laser heater, which is designed to suppress microbunching by decreasing the relative correlated energy spread early in the beamline. Simulations are performed for the FACET linac (SLAC), enabling direct comparison with existing theoretical predictions for CSR-induced microbunching in the presence of a laser heater. In addition to this comparison, we analyze microbunching amplification due to CSR and LSC both individually and jointly, highlighting their interplay. This work lays the foundation for upcoming experimental studies at FACET aimed at validating both theoretical models and numerical simulations.

Please consider my poster for contributed oral presentation

No

Would you like to submit this poster in student poster session on Sunday (August 10th)

Yes

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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