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Multi-bunch beam dynamics studies for the C3 main linac

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The Cool Copper Collider (C3) is a novel accelerator concept for a linear collider utilizing a cryogenically-cooled copper linear accelerator (linac) with a distributed coupling architecture. The C3 main linac is designed to accelerate electron/positron from 10 GeV to 125 GeV while preserving the beam's emittance. Here we present the analysis of the multi-bunch beam dynamics for the C3 main linac. We show the beam dynamics simulation results of the C3 main linac to identify the frequency bands that cause emittance growth and the amount of frequency detuning required to suppress it. Results presented will be used to guide the future design of the accelerating structure.

Footnotes

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