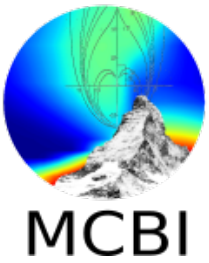

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* CLIC-DR Electron Cloud Build up Simulations

Tuesday 24 September 2019 16:50 (10 minutes)

Electron clouds are produced by photo-emissions, residual gas ionizations and secondary emissions during positively charged beam circulations in particle accelerators. The interaction between the beam and electron clouds leads to critical instabilities which may cause beam losses, trajectory changes and wake fields. In this study, we investigate electron cloud build-up for CLIC-DR's with 0.5ns and 1ns bunch spacings for two different filling patterns. VSim Plasma Discharges and Plasma Acceleration and PyEcloud are used for the 2D electrostatic PIC simulations where the effects of space charge, secondary and photoelectrons are included. We observe electron build-up's for two scenarios using different secondary emission yield models and quantify the total number of electrons and photoelectrons vs. time.

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