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Self-consistent 3-D electron-cloud simulations of LHC beam

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Author
Grote, David

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title: Self-consistent 3-D electron-cloud simulations of LHC beam

Authors: Jean-Luc Vay, Miguel Furman (LBNL, Berkeley, California), Ronald Cohen, Alex Friedman, David Grote (LLNL, Livermore, California)
Presenter Miguel Furman (LBNL, Berkeley, California)

Abstract
We present initial results for the self-consistent beam-cloud dynamics simulations for a sample LHC beam, using a newly developed set of modeling capability based on a merge of the three-dimensional parallel Particle-In-Cell accelerator code WARP and the electron cloud code POSINST. Although the storage ring model we use as a test bed to contain the beam is much simpler and shorter than the LHC, its lattice elements are realistically modeled, as is the beam and the electron cloud dynamics. The simulated mechanisms for generation and absorption of the electrons at the walls are based on previously validated models available in POSINST. We will present the details of the models and our most recent results.

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