

Abstract Submitted
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Beam-Plasma Interaction in Muon Ionization Cooling Lattices

JAMES ELLISON, PAVEL SNOPOK, Illinois Institute of Technology — New computational tools are essential for accurate modeling and simulation of the next generation of muon-based accelerator experiments. There are a number of software packages available to the muon accelerator community that allow detailed simulations with many physics processes accounted for. However, there is also a list of missing physics processes that require implementation or interfacing with other codes. This list is being prioritized, and the most important processes addressed. One of the crucial physics processes specific to muon accelerators that has not yet been implemented in any current simulation code is beam-induced plasma effect in liquid, solid, and gaseous absorbers that are key elements of a cooling channel. We report here on the progress of developing the required simulation tools and applying them to study the properties of plasma and its effects on the beam in muon ionization cooling channels.

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