Abstract Submitted
for the TSF16 Meeting of
The American Physical Society

Progress report on simulations of a magnetized neutralized electron cooler[1] JAMES GERITY, PETER MCINTYRE, Texas AM University, DAVID BRUHWILER, CHRISTOPHER HALL, RadiaSoft, LLC, VINCE JAN MOENS, cole Polytechnique Fdrale de Lausanne, CHONG SHIK PARK, GIULIO STANCARI, Fermilab — Existing designs for a future electron-ion collider (EIC) employ electron cooling, typically in the regime of strong magnetization, in order to reach high luminosities. Neutralization of the space charge in such a cooler can significantly increase the magnetized dynamic friction and hence the cooling rate. The particle-in-cell (PIC) code Warp is being used to simulate magnetized electron beam dynamics during and after the build-up of neutralizing ions, via ionization of residual gas in the cooler. A summary of simulations performed and preliminary results is given.

[1]This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nucle-ar Physics under Award Number DE-SC0015212

James Gerity
Texas A
M University

Date submitted: 27 Sep 2016 Electronic form version 1.4