

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Simulations of a fast feedback system for the High Luminosity LHC¹ ARON DAW, THEMISTOKLIS MASTORIDIS, Cal Poly - San Luis Obispo, PHILIPPE NGUYEN, University of Oregon — The High-Luminosity LHC upgrade, expected to be finished by 2025, will generate a tenfold increase in the number of recorded collisions. Part of this improvement will come from the implementation of crab cavities, which exert transverse momentum kicks on the bunches of particles just before they collide, in order to have head-on collisions. The crab cavity field will include amplitude and phase noise, leading to undesirable consequences, such as the increase of the particle cloud size (emittance). Simulations were performed to evaluate the performance improvement with a proposed fast feedback system acting through the crab cavities.

¹This work is supported by the National Science Foundation under Grant No. PHY-1535536

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Date submitted: 30 Sep 2016

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