Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Putting a New Spin on an Existing Machine: Prospects for Polarizing the Fermilab Main Injector CHRISTINE AIDALA, University of Michigan, FERMILAB P-1027 COLLABORATION — As we continue to explore quantum chromodynamics (QCD) as the theory of the strong force, with gluon interactions in hadrons responsible for more than 98% of the visible mass in the universe, spin remains an important degree of freedom to be able to manipulate in order to advance the field. In particular, spin-momentum correlations in QCD, broadly analogous to quantum electrodynamical spin-orbit couplings in the hydrogen atom, have risen to the forefront of QCD research over the past decade. The current status of a proposal to polarize the proton beam at the Fermilab Main Injector will be presented, and the physics that could be accomplished with a hadronic fixed-target program at such a facility will be discussed.

Christine Aidala
University of Michigan

Date submitted: 02 Jul 2012 Electronic form version 1.4