

ELECTRON CLOUD STUDIES AT THE FERMILAB MAIN INJECTOR

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Abstract

The Fermilab Main Injector is a rapid-cycling synchrotron designed to produce high-flux, high-energy proton beams for fixed-target applications, including antiproton and neutrino production. The present Main Injector produced about 400 kW of 120 GeV protons, but proposed upgrades are designed to produce in excess of 2 MW. One instability of concern is the electron cloud. We have observed the formation of the electron cloud at the Main Injector. At present intensities it produces no instabilities. We will present measurements made at the Main Injector, including: a threshold for cloud formation, bunch length dependence, conditioning with exposure. In addition, we will describe the evolving program for making measurements at the Main Injector, in anticipation of beam charge upgrades.

**CONTRIBUTION NOT
RECEIVED**