Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

ZDC prototypes for test beam measurements at CERN and FNAL TIANSU ZHANG, University of Illinois at Urbana-Champaign, ATLAS COLLABORATION — The High Luminosity upgrade of the Large Hadron Collider at CERN places significant demands on the radiation hardness of the Zero-Degree Calorimeter (ZDC) of the ATLAS experiment. This detector plays a key role in the heavy ion physics program, in particular in the measurement of the impact parameter and of the number of spectators nucleons in the collision. The Nuclear Physics Laboratory at the University of Illinois (NPL) collaborates on the development of a radiation-hard ZDC for ATLAS. As part of this upgrade effort, prototype hadronic and electromagnetic detector modules along with a single layered reaction plane detector (RPD) have been built. In November 2018, a dedicated beam-test has been performed at the H4 beam-line at CERN. Two hadronic detector modules have been tested, together with an RPD prototype. The detector was illuminated with both heavy ion and fragment beams, to study its properties. In my contribution, I will discuss the 2018 test-beam effort, with particular attention to the alignment of the setup, its simulation in Geant4 and the data analysis.

Matthias Perdekamp
University of Illinois at Urbana-Champaign

Date submitted: 24 Jul 2019 Electronic form version 1.4