Large Extra dimensions in the ATLAS detector

ESTEBAN FULLANA TORREGROSA, Argonne National Laboratory, ATLAS COLLABORATION — Large Extra dimensions in the ATLAS detector E. Fullana Argonne National Laboratory

One of the open questions in the Standard Model is the seventeen orders of magnitude difference between the Planck scale and the electroweak scale. Theories of large extra dimensions explain the apparent weakness of gravitational interaction by the leakage of gravitons through extra spatial dimensions. These theories predict that gravity could play an important role at colliders when the energy scale is above the TeV scale. The ATLAS experiment is one of the four experiments at the LHC, which is the new 14 TeV proton proton collider being commissioned at CERN (Geneva, Switzerland). The determination of the jet energy scale and its uncertainty is a milestone along the path to discovery of such signals. We describe the process to determine and validate the jet energy scale and its effect on extra dimensions signatures.

1Argonne National Laboratory’s work was supported by the U.S. Department of Energy, Office of Science, Office of Science, under contract DE-AC02-06CH11357

Esteban Fullana Torregrosa
Argonne National Laboratory

Date submitted: 11 Jan 2008

Electronic form version 1.4