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**Cosmic Muon Analysis with the CMS Detector** CHANG LIU, Purdue University, CMS COLLABORATION — Despite of the delay of physics collisions at the Large Hadron Collider (LHC), induced by the incidence in September 2008, the CMS collaboration is utilizing the commissioned detector to take large amounts of cosmic data. About 300 million cosmic events were recorded with the full detector and a magnetic field of 3.8 T turned on. The effort has provided significant statistics to study the detector performance and analyze the physics of cosmic rays. We present recent results from the cosmic muon analysis activities that were conducted using real data and dedicated cosmic Monte Carlo samples. Measurements of the cosmic muon charge ratio, the energy loss in the detector, the flux measurement, as well as other interesting studies were performed using dedicated reconstruction tools and have demonstrated good agreement between the real data and Monte Carlo samples. The cosmic muon analysis effort is not only a rehearsal for physics analysis at the LHC, but also provides interesting links to astrophysics and helps to validate the sophisticated simulation tools used.

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