

Abstract Submitted
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Experimental Analysis of Gaseous Chambers for the ATLAS Muon sub-detector Upgrade R&D EMMANUEL ANGULO, CSU Fresno — CERN, the world's largest particle accelerator facility, has begun its ambitious Large Hadron Collider (LHC) program which is and will remain as the world energy frontier until at least 2030. ATLAS, one of the LHC experiments designed to search for new physics, has been taking data for two years. ATLAS has been investigating the necessary changes to its sub-detectors to withstand much higher instantaneous luminosity and to operate after 3000 fb⁻¹ of integrated data. The goal is to achieve the same or better performance (spatial resolution, etc.) despite the large increase in event rate and final integrated dose. The current ATLAS Muon sub-detector will not be able to handle the increased luminosity of a factor of ten. This makes it necessary to replace the current muon sub-detector by possible new gaseous chambers that push their performance to limits never tested before. This talk will focus on the different lab experiments performed at CERN during the summers of 2011 and 2012, including functional uniformity results of a new "T-series" chamber design developed by the ATLAS Muon detector upgrade R&D team. As a result, a new visual mapping design was developed by the author that enabled an easier way to find anomalies in the chambers. This work has been presented to ATLAS Weekly Micromegas Meeting's 6 times during the summers of 2011 and 2012.

Emmanuel Angulo
CSU Fresno

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