

Abstract Submitted  
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**Test Beam Results for ALICE TPC Upgrade Prototypes** JAMES MULLIGAN, Physics Department, Yale University, ALICE TPC-UPGRADE COLLABORATION — The ALICE detector is one of four major experiments at the Large Hadron Collider (LHC), and its main purpose is to study the quark-gluon plasma created in relativistic heavy ion collisions. The Time Projection Chamber (TPC) is the main tracking detector within ALICE, and currently has an intrinsic rate limitation of 3 kHz. The LHC will be upgraded during Long Shutdown 2 in 2018 to have Pb-Pb collision rates up to 50 kHz, and so the TPC readout must be accordingly upgraded. This will be done by replacing the current Multi-Wire Proportional Chamber assembly, which uses a gating grid to prevent ion backflow, with Micro-Pattern Gas Detectors such as Gas Electron Multipliers (GEMs) and Micro-Mesh Gaseous Structures (MMGs), which allow for continuous rather than gated readout. A substantial R&D effort is underway for a 4-GEM design, as well as an alternate 2-GEM/MMG design. Prototypes of each design were tested in November-December 2014 at the PS and SPS beams at CERN; the results for the 2-GEM/MMG chambers will be presented.

James Mulligan  
Physics Department, Yale University

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