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Micromegas Detectors for an Upgraded ATLAS Detector at the High Luminosity LHC JASON VEATCH, KENNETH JOHNS, VENKAT KAUSHIK, University of Arizona — To cope with increased background rates and degraded muon detector performance at proposed luminosities that exceed the nominal LHC luminosity, we are investigating the use of large, bulk Micromegas for the Small Wheel upgrade at ATLAS. We describe several different prototypes that have been constructed to minimize sparking and provide two-dimensional readout. We also describe a large area prototype of a size needed for the ATLAS Small Wheel. The use of Micromegas in Time Projection Chamber mode was studied with two different types of front-end electronics and results from recent test beam runs are presented.

Jason Veatch
University of Arizona

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