

Development of large bulk-Micromegas detectors for the upgrade of the ATLAS Muon System for the SLHC

The luminosity upgrade of the Large Hadron Collider at CERN (SLHC) foresees a luminosity increase by a factor 10 compared to the LHC. To cope with the corresponding increase in background rates, the Muon System of the ATLAS experiment at CERN will likely need major changes in, at least, the highest rapidity region. We report about an R&D activity for the development of large-area muon detectors based on the bulk-Micromegas technology as candidates for such an upgrade. The detectors will combine trigger and precision tracking in a single device. Their low costs, compared to other detector technologies, and their potential for industrial production make the bulk-Micromegas excellent candidates for mass-construction of large muon chambers.

We report on results from beam tests of a 0.5 m² size prototype chamber that have been performed in 2009, as well as results from tests with different types of resistive coating of the readout electrodes, in order to reduce sparking of the chambers. A full-size prototype (1 m²) for the ATLAS upgrade Phase I is currently under construction; it includes on-chamber integration of the front-end and readout electronics.

Summary (Additional text describing your work. Can be pasted here or give an URL to a PDF document):

<https://twiki.cern.ch/twiki/bin/view/Atlas/MuonMicromegas>

Primary author: Prof. ALEXOPOULOS, Theodoros (National Technical University of Athens)

Presenter: Prof. ALEXOPOULOS, Theodoros (National Technical University of Athens)