Abstract Submitted
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Development of GEMs at Hampton University ANUSHA LIYANAGE, MICHAEL KOHL, Hampton University, MUSE COLLABORATION — Two GEM telescopes each consisting of three 10x10 cm^2 triple-GEM chambers 30-40 cm apart were built, tested and operated by the Hampton group. They are read out with APV25 frontend chips and FPGA based digitizing electronics developed by INFN Rome. The telescopes served as luminosity monitors for the OLYMPUS experiment at DESY in Hamburg, Germany, with positron and electron beams at 2 GeV. The telescopes have been recycled to serve as the beam particle tracker of the MUSE experiment at the Paul Scherrer Institute in Switzerland. In the identical configuration as in OLYMPUS, the telescope was limiting the accepted trigger rate in the test measurements. Therefore, an effort is ongoing to improve the GEM readout speed to meet the trigger rate at the design intensity of the MUSE experiment. Further, the Hampton group is responsible for the DarkLight phase-I lepton tracker which is in preparation at the low energy-recovering facility (LERF) at the Thomas Jefferson National Accelerator Facility in Newport News, USA, sponsored by the National Science Foundation through a Major Research Instrumentation (MRI) grant. The group's activities on GEM detector development will be summarized, and the achieved performance and the current effort to further improvements will be discussed.

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