Abstract Submitted
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Gas Ring Cherenkov Detector for 12-GeV Physics at Hall-A Jefferson Lab[1] J. WILSON, A. AHMIDOUCH, North Carolina A&T State University, T. AVERETT, College of William & Mary, S. DANAGOULIAN, B. GRIEGO, North Carolina A&T State University, B. WOJTSEKHOWSKI, Jefferson Lab, H. YAO, College of William & Mary, D. CAMPBELL, J. COOPER, C. FOSTER, A. JONES, D. LOCKLEAR, U. SALAMONOWICZ, S. SPRATT, North Carolina A&T State University — A Gas Ring Cherenkov (GRINCH) detector is being developed for the JLab Hall-A BigBite spectrometer. The goal is to accommodate high luminosity and high background rates experiments such as the A1n and the GMn experiments. GRINCH is a 1-atm C4F8O-based Cherenkov counter. The Cherenkov ring is reflected by a set of cylindrical mirrors onto a Photon Detector Array (PDA). The PDA consists of 8-9x60 29-mm diameter Electron Tubes 9125B PMTs, which provide timing information. The PMTs are mounted inside a magnetic shielding box to shield against the 15-30 Gauss magnetic field of the spectrometer magnet. Mirrorized plastic reflectors are used to collect the reflected Cherenkov light onto the PMTs. We present the GRINCH design, the results of the simulations leading to the development of the detector, as well as the test results of the prototype for the PDA.

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