

Abstract Submitted
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GEM Detectors of Proton Charge Radius (PRad) Experiment¹

XINZHAN BAI, University of Virginia, PRAD COLLABORATION — The PRad experiment (E12-11-106²) was recently performed at Jefferson Lab in Hall B. It was designed to measure the proton charge radius with high precision, through the elastic electron proton scattering process, using a non-magnetic-spectrometer method. PRad experiment reached very small ep scattering angles and thus it can see an unprecedented small four-momentum transfer squared region, Q^2 from 2×10^{-4} to $0.1(\text{GeV}/c)^2$. This experiment measures the proton charge radius by extracting the electric form factor of proton with a sub-percent precision. A pair of world's largest GEM detectors, and a high resolution calorimeter(HyCal) were utilized in the experiment. In this talk, we will present the performance of GEM detectors achieved in the experiment, such as efficiency and other characteristics, and preliminary analysis results of the experimental data.

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