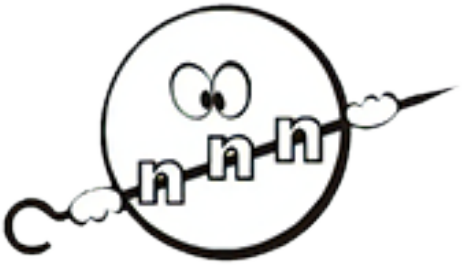

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Measurement of CSNS Back-n Neutron Beam Profile with Micromegas

Tuesday, 27 May 2025 09:40 (15 minutes)

The Back-n white neutron beam line, which uses back-streaming white neutrons from the spallation target of the China Spallation Neutron Source, is used for nuclear data measurements. A Micromegas-based neutron detector with two variants was specially developed to measure the beam spot distribution for this beam line. In this article, the design, fabrication, and characterization of the detector are described. The results of the detector performance tests are presented, which include the relative electron transparency, the gain and the gain uniformity, and the neutron beam profile reconstruction capability. The result of the first measurement of the Back-n neutron beam spot distribution is also presented.

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