The Design and Performance of the PHENIX Pad Chambers

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Abstract

The Pad Chamber detectors are part of the Central Tracking Arms for the PHENIX detector at the Relativistic Heavy Ion Collider. The Pad Chamber measurements of three-dimensional space points aid in pattern recognition for global particle tracking. Because of the excellent pattern recognition, we have been able to extract the charged particle multiplicity distributions from the Pad Chambers. The system consists of three layers of cathode-readout wire chamber detectors. The cathode is segmented into small pixels whose interleaved design reduces the channel count of the readout electronics while preserving spatial resolution. The readout electronics are mounted along the outer surface of the detectors and are of low density (0.2minimize interference with the passage of tracked particles through the detectors. The performance of these detectors during the 2000 RHIC running period will be presented and discussed.