The STAR RICH DETECTOR

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and the STAR COLLABORATION

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Abstract

A Ring-Imaging Cherenkov (RICH) detector has been installed into the STAR experiment at RHIC, in order to extend the particle identification capabilities of the experiment to a momentum range between 1 and 5 GeV/c at mid-rapidity. The STAR RICH utilizes a relatively new technology, developed for ALICE at the LHC by the Bari-CERN teams according to the techniques achieved in the CERN RD-26 project.[1] The detector installed is a prototype from this effort. The size of this detector, approximately 20 cm in width, with a sensitive area of 1.1 m^2 allows the RICH to be installed into the space between the STAR TPC and magnet. The RICH consists of two parts: a quartz radiator filled with liquid C_6F_14 provides the Cherenkov photons, while a proportional chamber outfitted with CsI-coated pads allows for the detection of these photons. A comparison between the capabilities of the STAR RICH and the detectors of the other RHIC experiments will be shown.

1 HMPID Technical Design Report, ALICE TDR-1, CERN/LHCC 98-19; F. Piuz et al, Nucl. Instr. and Methods A443 (1999) 222-234 and 178-189.