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Readout Electronics for the Forward Vertex Detector at PHENIX

MICHAEL PHILLIPS, University of New Mexico, PHENIX COLLABORATION —

The PHENIX experiment at RHIC at Brookhaven National Laboratory has been providing high quality physics data for over 10 years. The current PHENIX physics program will be significantly enhanced by addition of the Forward Silicon Vertex upgrade detector (FVTX) in the acceptance of existing muon arm detectors. The proposed tracker is planned to be put into operation in 2012. Each arm of the FVTX detector consist of 4 discs of silicon strip sensors combined with FPHX readout chips, designed at FNAL. The full detector consists of over 1 million active mini-strip channels with instantaneous bandwidth topping 3.4 Tb/s. The FPHX chip utilizes data push architecture with 2 serial output streams at 200 MHz. The readout electronics design consists of Read-Out Cards (ROC) located in the vicinity of the detector and Front End Modules (FEM) located in the Counting House. ROC boards combine the data from several chips, synchronizes data streams and send them to FEM over a Fiber Optics Link. The data are buffered in the FEM and then sent to a standard PHENIX DAQ interface upon Level-1 trigger request. We will present the current status of the readout electronics development and testing, including tests with data from production wedges.

Douglas Fields
University of New Mexico

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