Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Proposed STAR Time of Flight Readout Electronics and DAQ[1]
JOACHIM SCHAMBACH, The University of Texas at Austin, STAR COLLABORATION — A novel Time-of-Flight (TOF) subsystem is under design for the STAR detector at RHIC. A total of 3840 Multi-gap Resistive Plate Chambers (MRPC) of 6 pads each are distributed over 120 trays. The total number of channels is 23040. Each TOF tray consists of 192 detector channels and three different types of electronic circuit cards, called TINO, TDIG, and TCPU, listed in order of the data flow. Every 30 trays send their data to a THUB card that interfaces to the STAR trigger and transmits the data over a fiber to a fiber receiver which is part of STAR DAQ. The TINO contains the analog front end electronics based on a custom IC called NINO. The output of TINO is passed to the TDIG, where the data are digitized (using the CERN HPTDC ASIC). The TCPU formats and buffers the digital detector information. This formatted data is passed to THUB, which transmits it over an optical fiber to a data receiver in the STAR DAQ room. The architecture of this readout chain and DAQ will be described, and first results from prototypes of the component boards will be discussed.

[1]Supported in part by The U. S. Dept. of Energy.

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Date submitted: 13 Jan 2006 Electronic form version 1.4