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Development of the readout electronics for the sPHENIX Time Projection Chamber KLAUS DEHMELT, Stony Brook University, SPHENIX COLLABORATION — The sPHENIX experiment at RHIC is the repurposed experiment of the PHENIX experiment that ended data taking in 2016. The sPHENIX is aiming for measuring Jets and Quarkonia at RHIC energy where the strongly coupled Quark Gluon Plasma (QGP) is formed. In order to separate Upsilon states, a tracking device that can handle a few hundreds kHz collisions and keep a 100MeV mass resolution. Therefore, we have decided to build a a time projection chamber without gating grid. The signal charge has to be readout continuously which required a new readout electronics. In the new readout scheme, the signal is readout by 624 Frontend cards that have 8 SAMPA v5 chips, the new version of the one employed for ALICE TPC, and sent to a backend electronics, FELIX PCI card, designed for ATLAS experiment. The data rate from the whole TPC may reach as much as 1.4Tbps. We will show the readout scheme for the TPC and the performance from the prototype boards.

Takao Sakaguchi
Brookhaven National Laboratory

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