

# Application of GET System for J-PARC HypTPC Experiments

*Friday, 12 October 2018 14:30 (30 minutes)*

The GET system has been adopted for the readout of a newly developed time projection chamber (HypTPC) at J-PARC. The high rate secondary beam up to  $10^6$  Hz from the world highest intensity proton beam at J-PARC should be taken into account in design of the detector system. The HypTPC has the octagonal drift volume defined by the field cage, the cathode plane at the top and the amplification region at the bottom. The drift length is 55 cm and the target is located inside the drift volume for a large acceptance. The outermost gas vessel is filled with P-10 gas. When charged particles pass through the gas volume, ionized electrons along the track drift downward to meet the gating grid plane and triple layered GEMs, which are utilized to reduce ion back-flow in high rate beam environment. The amplified electron signals from GEM are read out by a total of 5768 pads, which are connected to the GET electronics via the conversion board at the bottom of the chamber. To cope with the high trigger rate, the partial readout mode with the zero suppression has been tested. Also, the GET system will run with the existing J-PARC K1.8 beam line DAQ system (HDDAQ) via an HUL module, which is under development, to share the trigger and busy signal and the event tag information. In this talk, the GET electronics implemented in HypTPC system will be summarized and the preliminary results of the commissioning of HypTPC with the GET system at HIMAC will be presented.

**Primary author:** KIM, Shin Hyung (Korea University)

**Presenter:** KIM, Shin Hyung (Korea University)