

## Integration of GET electronics on TPC for HIC program at RIBF

*Tuesday, May 19, 2015 2:25 PM (25 minutes)*

A Time Projection Chamber (TPC) for the heavy ion collision experiments has been produced as the main detector of SAMURAI-SPIRIT project for the study of nuclear equation of state.

As the readout system for the SPIRIT-TPC, we are integrating the GET system, which stands for the General Electronics for Tpc and was developed mainly by France and USA collaboration.

For the integration of GET electronics, development of interfaces in terms of both hardware and software are necessary.

For example, the interface of the electronics of GET to TPC depending on the each detector specifications, such as type of connector and characteristics of detector signal, has to be developed.

We call such interface ZAP board, which is for adapting connector on TPC and for protection of electrical circuit.

The board was designed to fit in the space on the TPC which is supposed to be installed in SAMURAI chamber, to reduce the noise to gain the dynamic range, and to reduce the distortion of gain among the different channel.

The achieved noise level with our ZAP is 4-ADC under the configuration of dynamic range of 120-fC and shaping time of 233-nsec.

It can be reduced to be 2~3-ADC after the subtraction of fixed noise pattern line which is not connected to TPC pads.

In addition to the report of the status of development and intergration of electronics, the benchmark test data of GET system on Brahm's-TPC performed at HIMAC at 2014 Nov will be presented.

This material is based on work supported by the DOE under Grant No. DE-SC0004835, and Japanese MEXT Grant No. 24105004.

**Primary author:** ISOBE, Tadaaki (RIKEN)

**Co-authors:** Ms PERREVOORT, Ann-Kathrin (RIKEN); Dr TAKETANI, Atsushi (RIKEN); Prof. TSANG, Betty (Michigan State University); Mr JHANG, Genie (Korea University); Dr BABA, Hidetada (RIKEN); Prof. SAKURAI, Hiroyoshi (RIKEN/U-Tokyo); Mr BARNEY, Jonathan (NSCL); Dr HOSOMI, Kenji (JAEA); Dr KURATA-NISHIMURA, Mizuki (RIKEN); Mr NAKATSUKA, Noritsugu (Kyoto University); Dr HASEGAWA, Shoichi (JAEA); Dr MURAKAMI, Tetsuya (Kyoto University); Prof. LYNCH, William (NSCL); Mr POWELL, William (University of Liverpool); Dr AYYAD, Yassid (Research Center for Nuclear Physics)

**Presenter:** ISOBE, Tadaaki (RIKEN)

**Session Classification:** Session 7

**Track Classification:** Technical issues