DarkLight Weekly Meeting, Jan 10, 2024

GEM Detectors - Hampton

Michael Kohl <kohlm@jlab.org> *

Ryan Richards <ryanrich@jlab.org>
Manjukrishna Suresh <smanjukrishna92@gmail.com>

Hampton University, Hampton, VA 23668
Jefferson Laboratory, Newport News, VA 23606

GEM Status

November / December status:

- triggered readout with periodic pulser - no RO errors up to ~kHz
- triggered readout with cosmics - many RO errors, require latching

January 2024 status:

- have set up latching with gate generator, tested with periodic pulser, can take few hundred Hz without errors at 1 ms (2 ms) fixed busy time
- next: test with random triggers (use PMT noise)
- started arrangements to obtain Sr-90 source
- started flushing $ArCO_2$ on Mon Jan 8, fresh bottle 2400 PSI ~=165 bar

Next:
- ready to turn on HV on "Tanvi"
- tune latency, HV, figure out mapping (with Sr-90)
- set up larger scintillators and trigger for cosmics
- take cosmics

GEM Status

Other tasks:

- contact Rui at CERN for repairs of other GEMs. Expect 3 months if repair is successful, or 6-9 months if new GEM foils need to be made

- coordinate with JLab / A. Camsonne about VXS+VTP ordering

- test APV electronics, update inventory, ship 13 APV cards to TRIUMF, upgrade/unify MPD firmware on other MPDs

- set up "Jesmin", repeat HV test, mount electronics, commission like "Tanvi", stack two GEMs, extend frontend to read out two MPDs;

- investigate returned controller and CF card, replace (a very similar issue happened at PSI in December)

THANK YOU!