# ISU GEM development Update

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# Update

- We now have a decoder working based on the SBS offline github repository.

- We installed and tested all 6 of our MPDs -- meaning we just collected ~100 events from each using our 12 APV/2 GEM configuration.

- We used decoder to analyze and found very odd problem:
    - All six samples for all wires for the the first event are there (good) and the first sample (for all wires) of the second event are there (good), but everything after that is zero – all zeros for all wires and samples.

- I contacted Bryan Moffit about this problem; I sent him a raw data file and my readout list; he is now looking into it.  This was last week.

# Readout Hardware Update

- We have sent our remaining 2-slot backplanes to the rework shop to fix $I^2C$ addressing issue (will have in 1 week)
- Digital Patch Panels have been delivered.  We will test them next week
- We have the USB blaster and still plan to update MPDs FPGA firmware soon (haven’t yet)
- Still planning to ship electronics to SBU in early May (after dust settles from semester ending).

# GEM Hardware and DAQ Update

- We completed HV burn-in procedure on our second GEM chamber and assembled a lower current divider circuit (as compared with our first GEM)

- This divider circuit uses 5x higher resistances between foil top and bottom and in between foils giving 5x lower divider current (~150 $\mu$A instead of 750 $\mu$A) which works better with our HV PS

- 75/25 Ar/$CO_2$ now flowing through top and bottom chambers; flow rate is ~12 ml/min

- Ramped-up HV to 4 kV without issue; divider current is steady at just under 150 $\mu$A (as designed)

- We have small, localized cosmic trigger acquiring data at ~10 events per hour.

- Still waiting for approval to get Fe button source for testing.  Should purchase soon