

# ISU GEM development Update

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PREX GEM Meeting: 3/23/2018

# Update of ongoing work

- We now have two 10x20 GEMs fully instrumented (12 APVs) and being readout by a single MPD.
- Discovered a new 2-slot backplane I<sup>2</sup>C addressing limitation that really only affects a 10x10 GEM system (because these systems require more 2-slot backplanes connected to single MPD)
  - We only incorporated a 2 pin dip switch into PCB design for unique addressing but we now realize we need a minimum of 3 bits. The 4-slot backplanes do not have this problem
  - We can fix this limitation with jumper wires; we will split our 20 2-slot backplanes into 4 batches – each with unique address bits; 3 week lead-time; we have 5 that are ready to go
- Our decoder is a work in progress. We have it compiled and running. It is working at a rudimentary level but we are struggling to get the APV data into the main tree/histo structures (I have been asking Danning for help with this); I could send Seamus sample raw data files and Danning's (VME-backplane) decoder to see if he can make faster progress
- We have the USB blaster and plan to update MPDs firmware soon
- We have the parts in hand for the low-current HV divider circuit and will build this week.
- We sent our Digital Patch Panel PCB design to the shop and will have 20 made for ISU and SBU to use. These are required for a single MPD to control several (three or more) 2- or 4-slot backplanes; 2 week lead-time
- We will also have Analog Patch Panels made which enable efficient use of MPD input channels when using the 2-slot backplanes; have not put in order yet, but expect 2 week lead-time