

# Update on UVa GEMs

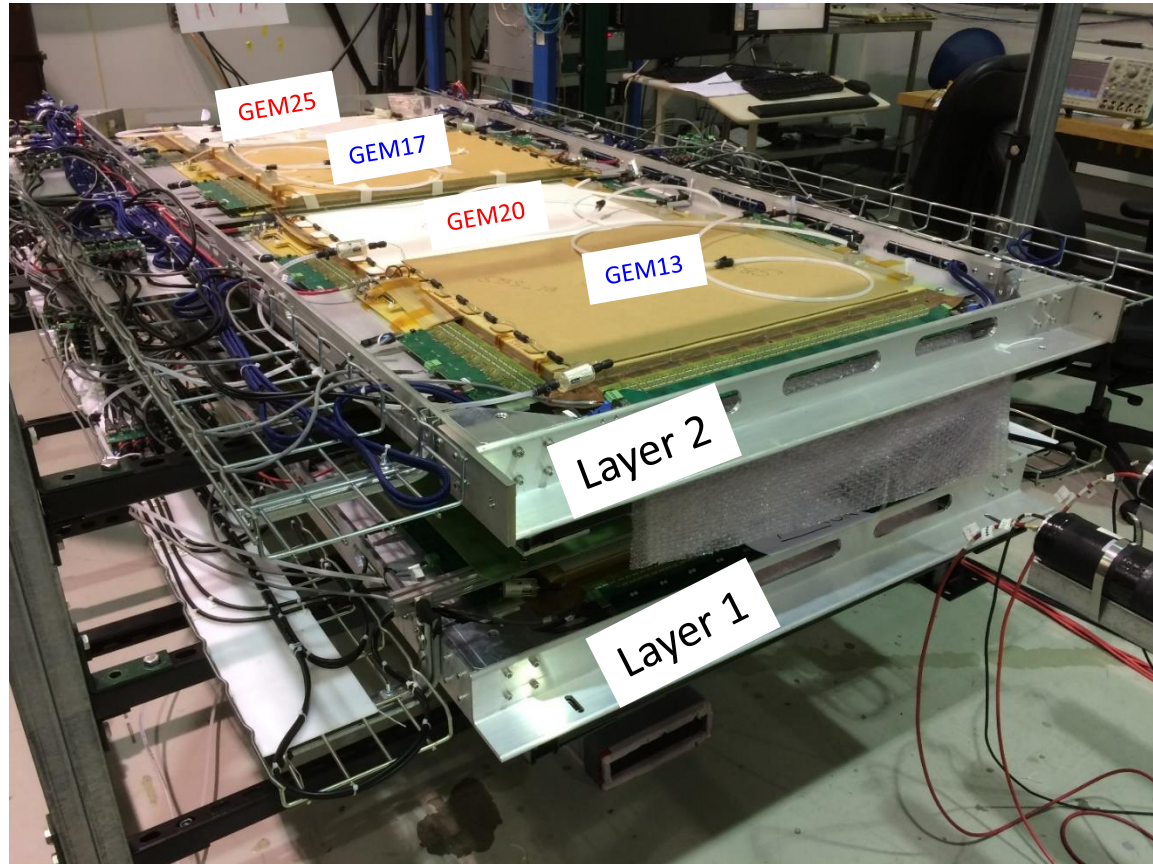
**SBS Weekly Meeting, April. 25, 2019**

**Kondo Gnanvo**

**Weekly meeting for the commissioning of the GEMs every Thursday at 9:00 am**

Wiki: [https://hallaweb.jlab.org/wiki/index.php/GMn\\_GEM\\_Commissioning\\_Meeting](https://hallaweb.jlab.org/wiki/index.php/GMn_GEM_Commissioning_Meeting)

- ⇒ Layer 1:
  - ⇒ 4 GEM modules 33, 47, 16, 19
- ⇒ Layer 2:
  - ⇒ 4 GEM modules 13, 20, 17, 25
- ⇒ HV on Nitrogen:
  - ⇒ All 8 GEM modules have been tested for several days on HV at 4200 V on N<sub>2</sub>
  - ⇒ Leakage current stable and consistent with the expected value
- ⇒ No cosmic data yet.
  - ⇒ This will happen at end of May
  - ⇒ We need to get all parts (cable, HV PS ...) ready before ⇒ See next slides
- ⇒ Activities now switched to preparation of PReX GEMs



## **HDMI cables:**

- ⇒ We tested different type of cables to select the best quality cost compromise
- ⇒ Already procure all short cables needed for the 11 UVa GEMs layer
- ⇒ Still need to perform one more test for the section of the long cables
  - ⇒ the test should be completed this week
  - ⇒ And expect to send the purchase request to Mark in a week or so

## **GEM layer Alu Frames:**

- ⇒ From the assembly of the first two layers → we identify a set of minor modifications to be done on the frames
  - ⇒ The assembly of the third layer should contain all these modifications and be final
- ⇒ Working with Chris Soova (JLab Engineering group) to implement these changes and send it to the machine shop
- ⇒ Job request for the machine shop had already been approved by Thia a few weeks back
  - ⇒ We expect the modifications of the parts of at least one layer been done by end of May
  - ⇒ The assembly of layer 3 should contain all these modifications and be final

## **Support pieces for the APV25 12 slot backplanes:**

- ⇒ Needed to support the 12 slot back planes attached to the flexible part of the 4 GEM modules readout layer
- ⇒ 3 different type of support pieces prototypes were for the 4 modules in the GEM layer
- ⇒ 2 of the pieces (short pieces) are 3D printed here at JLab (Brian Kross)
- ⇒ 3<sup>rd</sup> prototype (too long for 3D printing was produced at UVa machine shop
- ⇒ All pieces have been tested OK on GEM layer 2

## **Low voltage power supply for the readout electronics (Siyu)**

- ⇒ Working with C. Cuevas group for a cheap and JLab approve system
  - ⇒ LV power supply modules used in the past at JLab are available at no cost (ModuPacs...)
  - ⇒ Low noise and all safety compliance with JLab ⇒ system tested on GEM layer 1
  - ⇒ Will be used for PReX GEMs in the experiment

## **HV power supply**

- ⇒ So far, we are using 4-channels CAEN N1470 ⇒ Enough for one layer and to be used later for PREX
- ⇒ UVa Wiener Crate and MPOD HV modules will be used in EEL for the cosmic data (end of May)
  - ⇒ For that we will need a second rack in the clean room (work with Chuck and Mark about that)

# Preparation of PREX GEMs

(Siyu Jian)

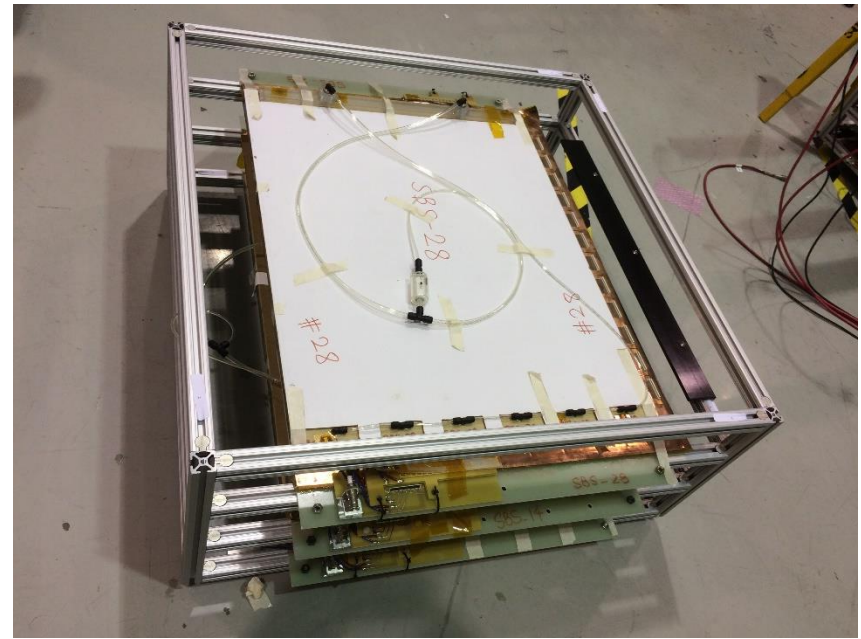
## 2 Trackers of 3 UVa GEM modules each

- ⇒ Tracker 1 is ready for cosmic data taking
  - ⇒ Have HV tests OK on N2 for all 3 GEMs
  - ⇒ Will start cosmic data this afternoon
- ⇒ Tracker 2: all 3 GEMs assembled
  - ⇒ Will tested an take cosmic data after the test of tracker 1 (sometime next week)

PREX Tracker 1 ready for cosmic



PREX Tracker 2



# Future Plans

## **Uva GEM commissioning personnel change**

- ⇒ A few people are leaving the group
  - ⇒ Siyu will be busy with PREX
  - ⇒ Tongtong will be leaving at the end of this month (April)
- ⇒ New people arriving
  - ⇒ Annuruddha from UVa will join end of May to work full time on GEM activities
  - ⇒ John Matter is also will be joining (ater this summer (July...) helping working basically on GEM DAQ
  - ⇒ M. Kohl is working to find a replacement for Tongtong and is optimistic about the outcome

**I will be away for 3 weeks this month** (MPGD2019 conference in France ad trip at CERN

So the activities will resume end May