

## SBS GEM pre R&D at UVA

- Duration : August 2011 - August 2013
- Funding received: Total: \$ 270 k (3 contracts - \$ 45 k, \$ 98 k and \$ 127 k.)
- Other funding for UVA GEM R&D: UVA internal funds - \$ 60 k, EIC detector R&D - \$ 150 k and all team members except Dr. Nelyubin paid by Liyanage DOE grant)
- UVA GEM team: Liyanage (PI), Nelyubin and Gnanvo (Research scientists), Saenboonruang , Gu, Bai, and Sacher (students)
- SBS GEM prototypes produced:
  - 2011-2012- two SBS prototype modules
    - prototype # 1: operational, with 4 out of 20 sectors disabled.
    - prototype # 2: operational, with 1 out of 20 sectors disabled.
    - conclusion: basic design works, but needs many design improvements to facilitate fabrication and operation.
  - 2012 - An improved new design prepared addressing the noted issues.
  - 2012-2013 - two SBS prototype modules
    - fabrication considerably improved with the new design.
    - All sectors operational with all characterization results meeting SBS design criteria.
    - SBS GEM module design and fabrication methods established.
  - 2013 - Two GEM modules currently under fabrication based on the established design and procedure: several minor improvements will be tested using these two final pre R&D modules.
- Two APV25 based readout systems capable of reading 10,000 channels was setup and characterized.

**Conclusion: the SBS GEM module design and fabrication procedure established with Full size prototypes meeting design goals**

# SBS WBS2 production plan - 29 modules

Jlab made errors in Budget numbers entered into PMP: trying to clear up for the last month.

Date	Milestone
08/15/2013	GEM module fabrication purchase order setup
09/30/2013	Orders for GEM chamber components placed
02/01/2014	First batch of GEM foils arrived GEM module assembly at UVa started
05/30/2014	Complete the production of 5 modules, test and deliver to Jlab with production logs
09/30/2014	Complete the production of another 10 modules, test and deliver to Jlab with production logs
03/01/2015	Complete the production of the remaining 14 modules, test and deliver to Jlab with production logs

- Contract setup is currently held up by the stupid Jlab bureaucracy. Procurement person trying to overrule the agreed upon payment schedule
  - The window of opportunity to get the project started is closing fast
- Rui wants the order soon to get us in line plus I start teaching in two weeks and I am the new director of graduate studies
- If the contract is not setup in the next day or two, it is possible that milestones will slip by months

## WBS3 GEM module plans

- 35 module scenario:
  - Total cost - \$ 685 k
  
- 11 module scenarioThe
  - total cost - \$ 327

The reason that the WBS 3 per module cost is higher is because the SBS PMP assumes more man power for a WBS 3 GEM module than for a WBS 2 module. At the time of writing of the PMP, I was asked to move 1 FTEY of manpower from WBS2 to WBS3 so that the dollar amount for each year of the project could be balanced.