

SBS Electron Calorimeter

Mark Jones

Many groups involved

SBS/ECal collaboration

JLab/UVa/YerPhi/SBU/JMU/NCCU

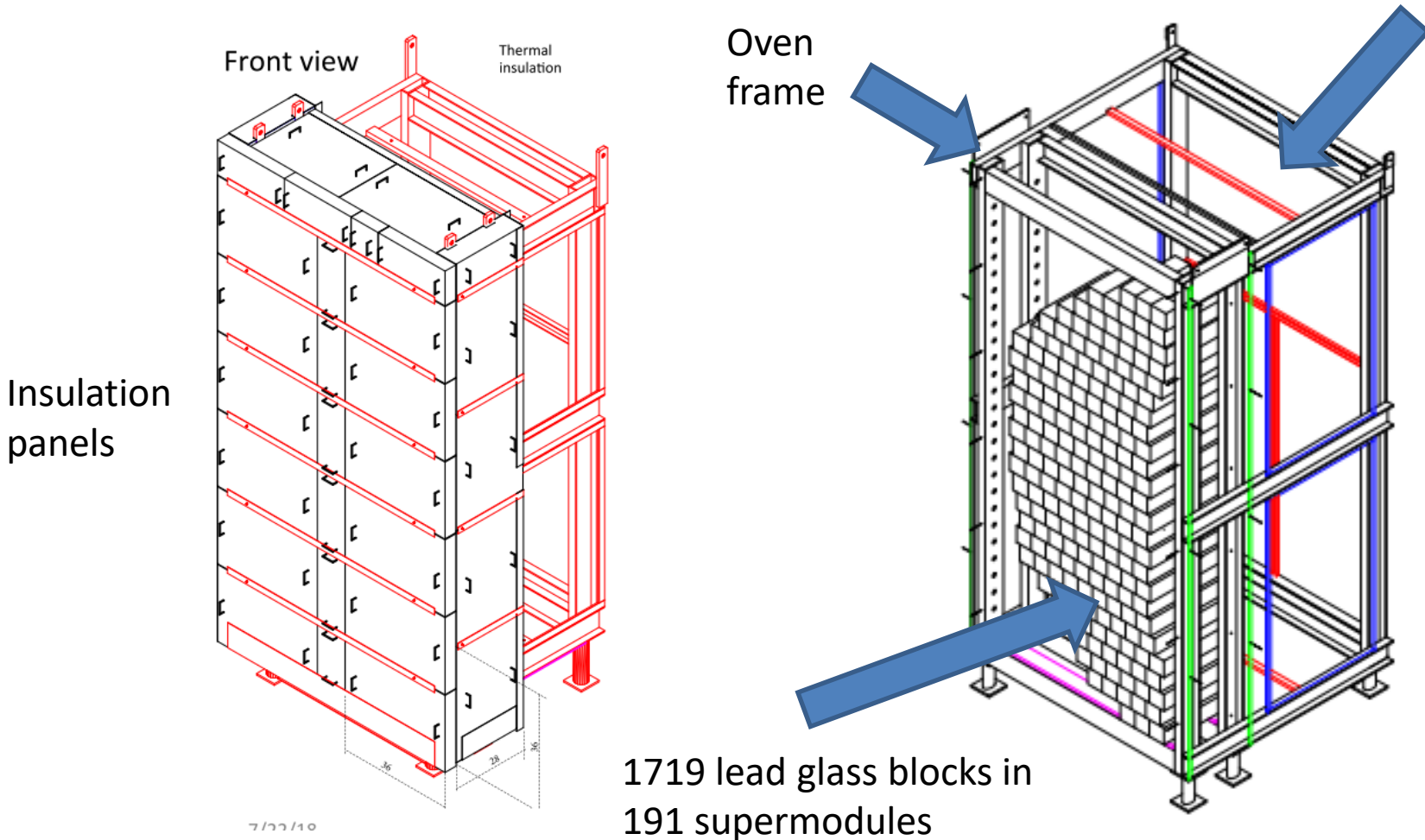
GlasgowU/UVa/NCAT/UConn/CMU/INFN

- ECAL was not funded in the SBS Project, so funding has to come from universities and Jlab Hall A operating budget.
- North Carolina Central University received a large grant for designing ECAL and building the ECAL oven.

SBS Electron Calorimeter

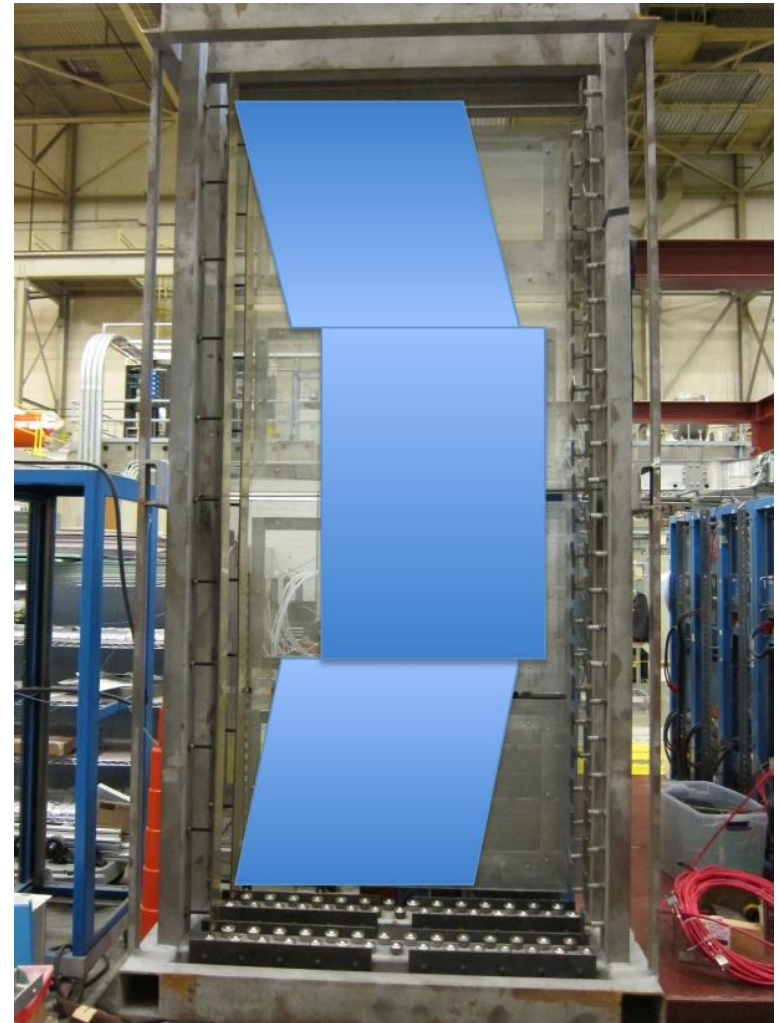
- Design by Yerevan, NCCU and JLab

PMT light box with
air distribution

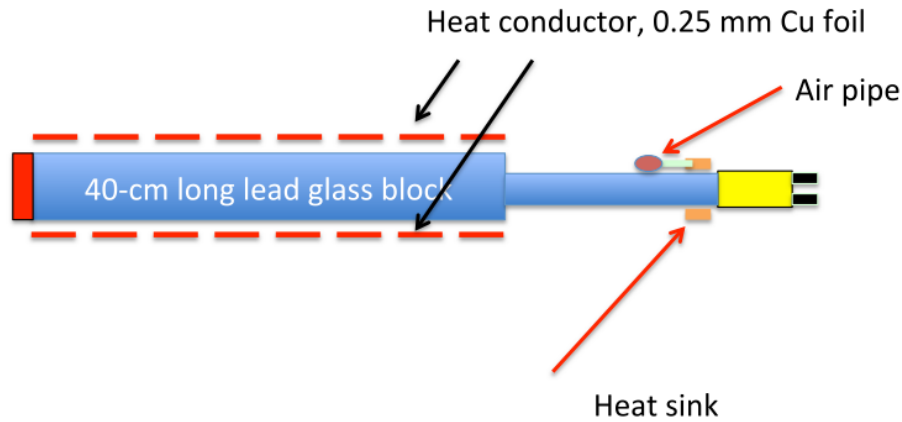


SBS Electron Calorimeter

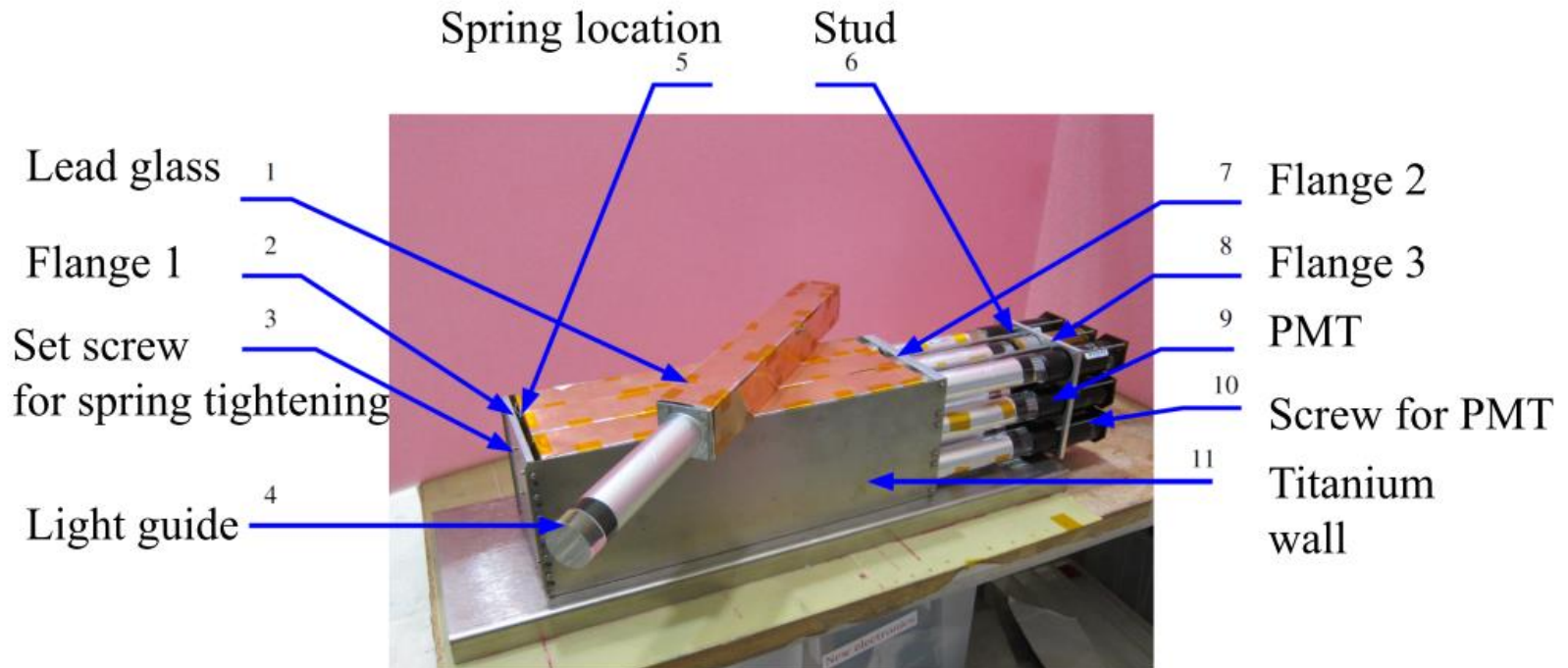
- NCCU purchased oven frame and arrived at Jlab last summer.



SBS ECal Supermodules

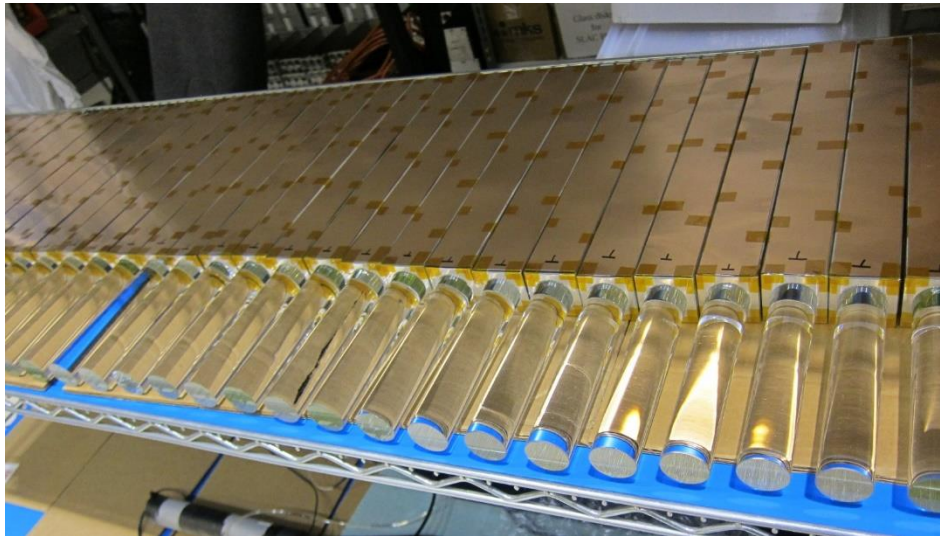


Extensive testing of design concept at Jlab and SBU



Work since Feb SBS meeting

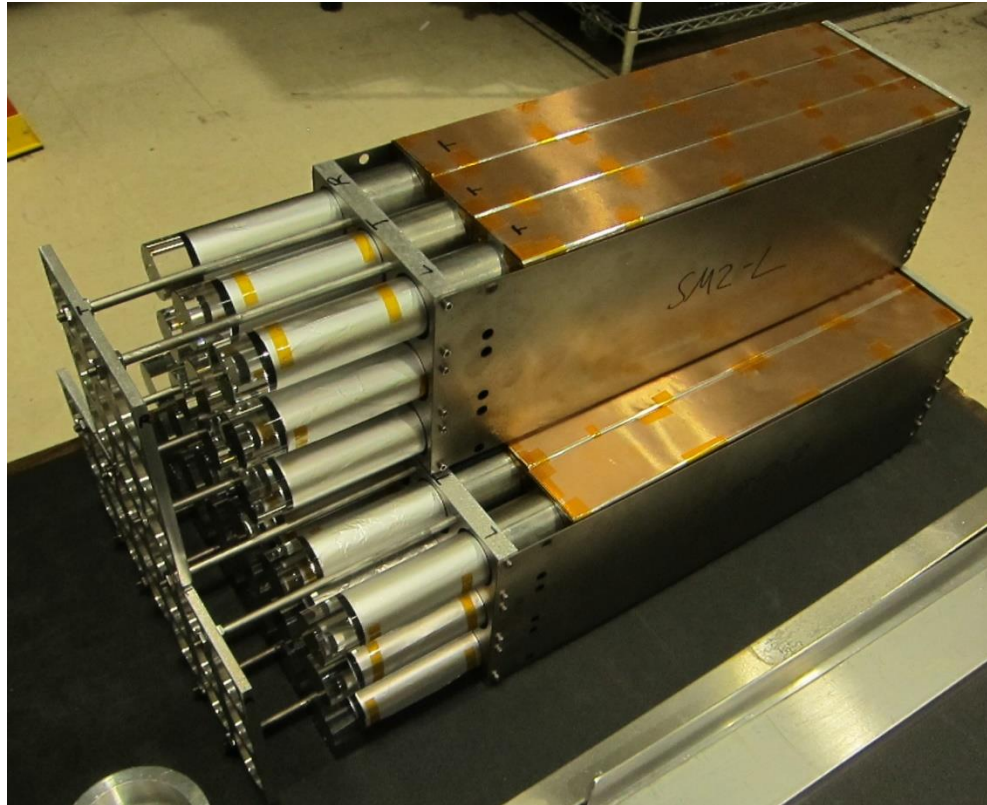
- Cutting of material to wrap the lead glass blocks.
- Wrapping of the lead glass blocks.



Binh Ton (NCCU)

Work since Feb SBS meeting

- 126 of out 191 supermodules have been assembled
- JLab Detector Support Group is contributing manpower to assembling supermodules.



Summer Work

- Samudu Katugampola and Chris Janzi (UVa)
- Jorge Pena (JMU)
- Remy Arsenault (SMU)



Remy Arsenault (SMU)



Samudu Katugampola (UVa)

PMT base design

- Need to replace about 1000 Protvino style bases.
- Gabriel Niculescu and Ioana Niculescu at JMU have taken responsibility for new base design. Working with students: Jorge Pena, John Klug and James Dennis.

Salvaging parts from old bases

JMU students working on detaching the sockets and signal cables from the old bases.



PMT base design

- Initial design sent to a VA company and a Chinese company.
- 1st version: capacitors voltage rating too close to spec
- 2nd version: Sparking due to distance between HV soldering point
- 3rd version: Updates sent to Chinese manufacturer. Expect new version for testing in beginning of August.



Conclusion

- Completed assembly of supermodule frames and cutting of materials for wrapping by Feb 2019.
- 126 of the 191 supermodule frames have been filled with lead glass.
- Preparing test of system with a subset of supermodules in the TestLab.
- All PMTs have been tested by JMU and design of base is nearly finalized.
- Need to complete design of ECAL back frame and the support for the ECAL/CDET and then procure.

Backup slide

PMT testing completed by JMU

- Gabriel Niculescu [reported on work](#) last collaboration meeting.
- JMU completed testing of 2400+ PMTs by summer of 2018.
- Measured relative QE, after pulsing, and gain vs HV curves for all PMT.
- Determine that ~1900 PMT are usable