

Electromagnetic Calorimeter of GEp Experiment STATUS Jlab/NCCU/YerPhI project

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ECAL FRAME

- ECal full frame



4/19/2022

- ECal frame bottom



Albert Shahinyan

SUPER MODULE preparation

- All lead-glass modules glued, wrapped and ready for SM stage
- Need total 192 SMs
- Assembled 163 SMs
- Need to reorder 4 frames type SM2
- 9 SMs moved to Test Lab for test installation in the main frame

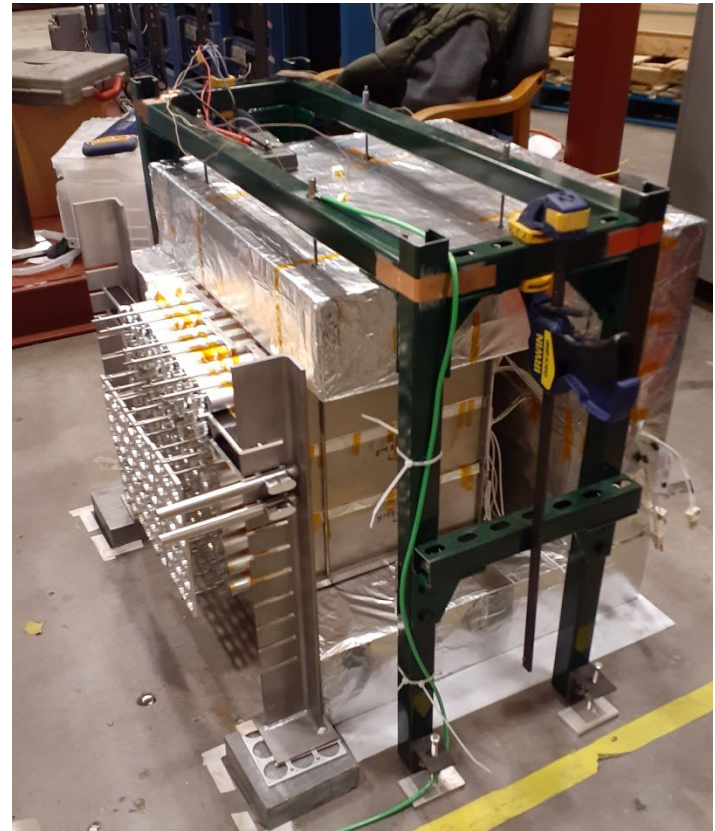


ECal prototype thermal test

ECal prototype



Prototype with foam-glass

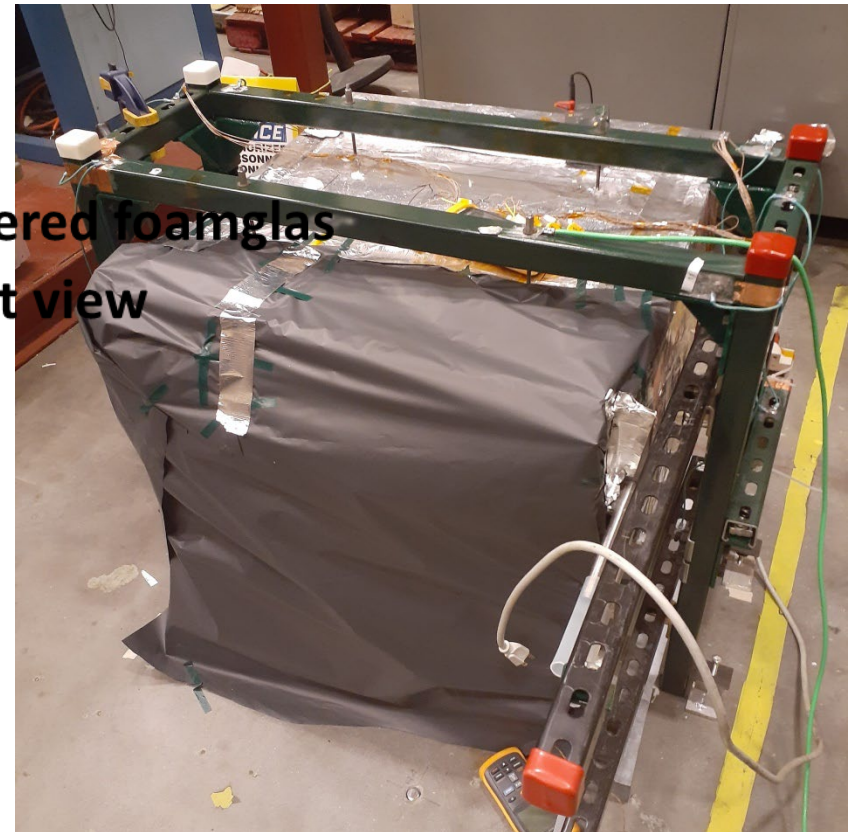


Heating test stand

Prototype covered foam-glass
Front view

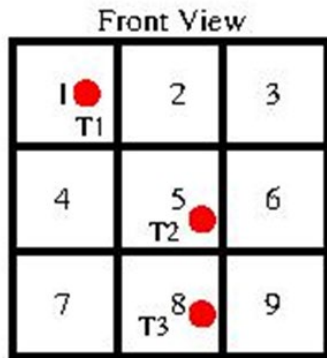


Prototype covered foam-glass
Back view

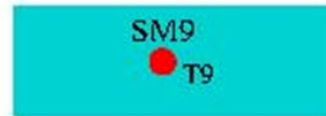
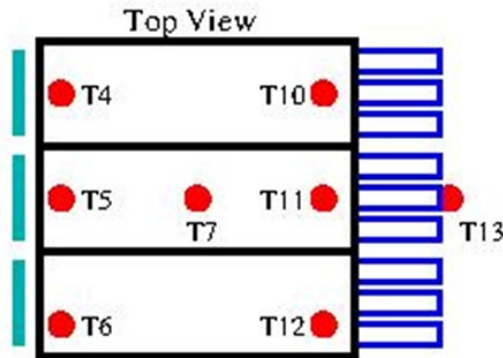


ECal prototype test setup schematic view

Front and side view



Side View



Side View

Thermocouple position

- *T1 – on flange 1*
- *T2 – on flange 5*
- *T3 – on flange 8*
- *T4,5,6 – on LG front*
- *T7,8,9 – on LG middle*
- *T10,11,12 - on LG back*
- *T13-on Light guide*

Observation

- Thermal test ECal with Heating prototype based on 9 SMs
- Equipment for test: heating tape, thermocouple, transformer, voltmeter, thermometer, foam-glass
- Start the energize heater 63 V. Temperature: on the flange - 360 degrees, on lead glass - in front 250 degrees, in the back - 170 degrees. Switching off the transformer every 12 hours.
- After several days reduce output transformer each 12 hours 3 Volts and don't turned off for the night.

Test Results

- After 3 days, the temperature.
- In front of the lead glass was **250** degrees
- In the back - **188** degrees, which was required by the project.

Summary

Past activity for 4 months

1. Preparation of the 81-block prototype for thermal tests
2. Development of the safe procedure and documentation
3. Find a lifting mechanism for SM installation
4. Coordinate construction of super-modules
5. Coordinate Bin's work in JLab
6. Help GMn - eight night shifts

Further plan for next 4 months

1. Prepare 9 SMs for text installation in the main frame
2. Mainframe issue in design of support plate - fixed
3. Design front end electronics drawings
4. Ordering heating elements for full ECAL - plates, heaters, thermocouples, foam-glass
5. Coordinate assembling SM
6. Develop side heating panels
7. Drawings for SM2 and ordering 4 more SM2 frame.