

# Detector Support Group

*We choose to do these things "not because they are easy, but because they are hard".*

**Weekly Report, 2024-04-17**

## Hall A – ECAL

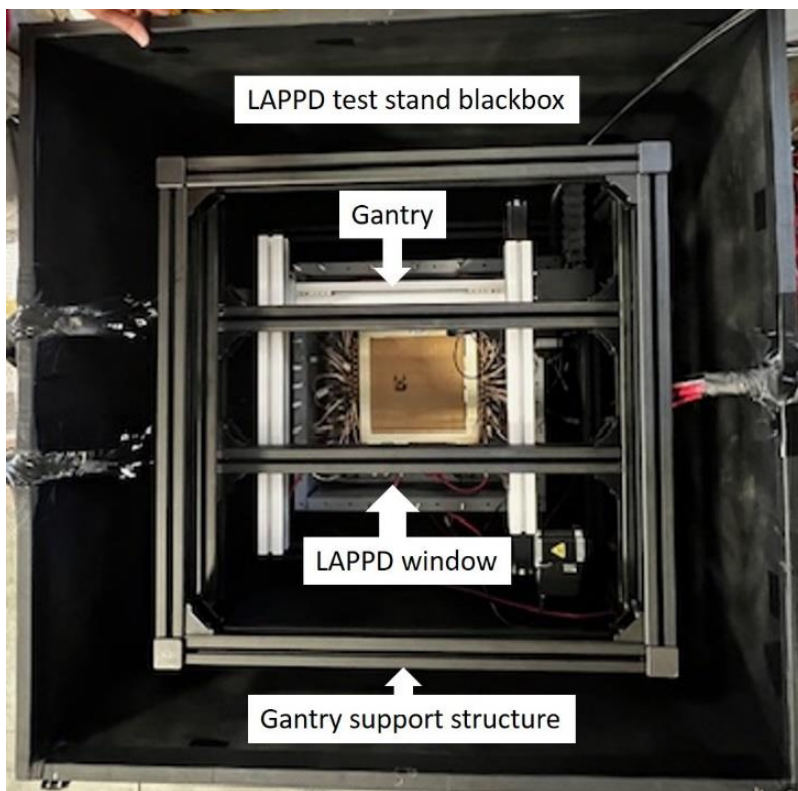
Marc McMullen

- Attended detector fire safety review and walkthrough
  - ★ Updated the Jlab fire safety group on the controls and safety system design

## Hall A – LAPPD

Pablo Campero, Brian Eng, and Marc McMullen

- Assembled gantry using 600-mm aluminum extrudes
- Dry fit gantry support structure in darkbox to verify LED holder box positioning over LAPPD window and to take dimensional measurements
  - ★ Found that LAPPD frame is lower by 0.4 cm on one side



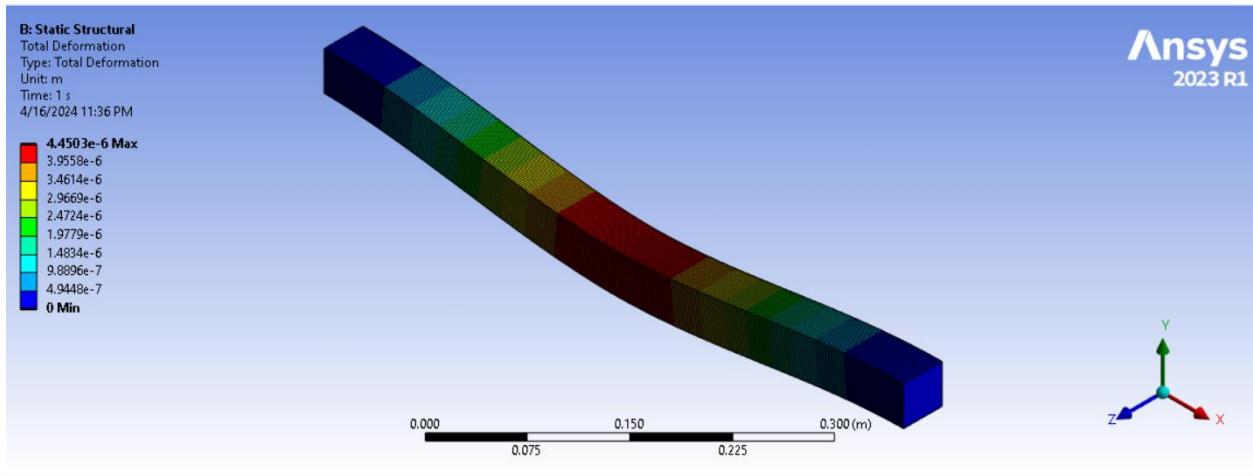
Dry fitting of gantry support structure into the LAPPD darkbox

- Calculated length for the optical fiber to be ~2.95 inches
- Made calculations using Ansys Static Structural of the T-slot profile used for the gantry's support
  - ★ Calculated total weight of the gantry system as ~9 Kg
  - ★ Applied a force of 160 N (total weight of 16 Kg) at the center (300 mm) of the T-slot profile (with a cross section of 40 x 40 mm)
  - ★ Maximum deformation is less than 4.5  $\mu\text{m}$
  - ★ Moment reaction is 12 Nm

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Simulated total deformation of the T-slot profile

## Hall C – NPS

*Aaron Brown and Mary Ann Antonioli*

- Redoing plots of front and back crystal sensor temperatures for various conditions
  - ★ Increasing ambient temperature
  - ★ Decreasing ambient temperature
  - ★ Steady ambient temperature
  - ★ Front and back crystal sensor temperatures with beam current
  - ★ Average front and back crystal temperatures
- Working on version 3 of control and monitoring LabVIEW program
  - ★ Resolved trip delay calculation subVI issue of code not executing and issue of status trip time and latch trip time arrays not updating properly
  - ★ Working on state machine for trip delay calculation
  - ★ Began revising array builds of EPICS variables to LabVIEW variable and breakouts of LabVIEW variable to EPICS variables, reflecting change to fewer arrays in overall code

## Hall D – FCAL2

*George Jacobs*

- Tested 69 PMT bases; 827 good bases tested
  - ★ Three had shorted low voltage caps (output amplitude lower than expected) and one had no signal

## EIC – DIRC

*Tyler Lemon*

- Assisted with loading of barboxes into shipping crates at SLAC for transport to JLab

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Barbox being loaded into a shipping crate at SLAC using their chain hoist and rail system



Barbox placed inside shipping crate at SLAC before closing interior basket of crate

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- Met with SLAC collaborators to discuss barbox disassembly process and their recommendations on how to disassemble
- Assisted with unloading of shipping crates in EEL 108



One barbox shipping crate being moved into EEL 108 after arrival from SLAC

- Reviewed accelerometer data from barbox shipping from SLAC to JLab
  - ★ Barboxes did not experience  $\sim \pm 1$  g during trip

## **DSG R&D**

*Peter Bonneau and Mindy Leffel*

- Researching and specifying hardware for the Phoebus test station
- Fabricating cRIO chassis
  - ★ Attached 5-V power supply and terminal blocks
  - ★ Researched and ordered components
  - ★ Started fabrication of 210 ferrule-to-ferrule test cables—cut 105, stripped and crimped 60



Phoebus cRIO test chassis