

Calibration and Controls for FF Detectors

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Roman Pots/OMD

- **Control systems**

- Motors to move detectors in and out of beam.
- HV (100V - 200V) and LV ($\sim 5V$) controls for silicon + readout.

- **Monitoring**

- Temperature \rightarrow using conductive cooling, need to make sure detector stays at operating temperature ($\sim 20C$).
- Rates/occupancy \rightarrow especially important in terms of motor system – need to make sure detector only moves closer to beam if rates in detector are stable (done manually in STAR, want to automate for EIC).

- **Alignment + Calibration**

- Combination of laser/survey alignment for detector package location and beam position monitors to locate beam with respect to the detector.

B0 Tracking + EMCAL

- **Control systems**

- HV (50V - 200V) and LV ($\sim 5V$) controls for silicon (AC-LGAD + SiPM?) + readout.

- **Monitoring**

- Temperature \rightarrow using air or liquid cooling.
- Monitoring of overall rates in detector while running \rightarrow detector in relatively high radiation environment.

- **Alignment + Calibration**

- Survey alignment for detector package location.
- Calibration system for SiPMs.

Zero-Degree Calorimeter

- **Control systems**
 - HV (50V -100V) and LV ($\sim 5V$) controls for silicon (SiPM) + readout.
- **Monitoring**
 - Temperature \rightarrow using air cooling.
- **Alignment + Calibration**
 - Calibration for SiPMs.
 - Survey alignment (detector is stationary on table between hadron and electron beamlines).