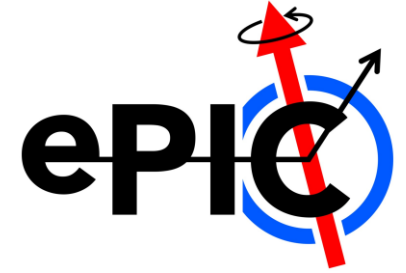


SRO Meeting | BHCAL Calibration Needs

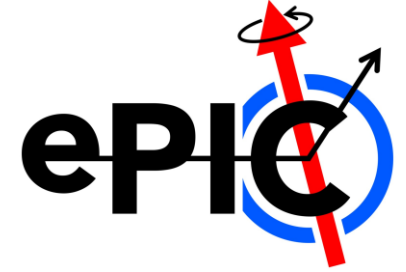
- **[Calibration] MIP Calibration**
 - Calibrates to EM scale by studying MIPs in cosmics
 - Done pre-installation, and cosmic data taken during running period to validate calibration
- **[Operation/Calibration] Gain Monitoring**
 - Gains will be monitored w/ LED and Test Pulse system as is currently being done in sPHENIX
 - There, took regular LED runs during running period to assess detector health
- **[Calibration] “Fast” (ML) Calibration**
 - Uses ML to combine information from other subsystems into physical particle energies
 - Should be very hands-off so long as gains are stable
 - ☞ “garbage-in, garbage-out”

SRO Meeting | BHCaI Calibration Needs



	MIP Calibration	Gain Calibration	Fast Calibration
External data needed?	Yes: simulation reference	No	Yes: simulation reference
Specific beam conditions needed?	Yes: no beam in machine	Yes: no beam in machine	No
Need other detectors to be calibrated?	No	No	Yes: BIC, barrel trackers (maybe hpDIRC/TOF)
Time scales needed?	When able during run	When able during run	Only when gains change (i.e. rarely)
How much data needed?	Not much	Not much	Hard to tell now...
Human intervention needed?	Likely no	Likely no	Likely no
If intervention needed, can the SRO group help?	Yes	Yes	Yes
Where are calibration results applied?	During reconstruction	During reconstruction	During analysis
Is external storage/DBs needed?	Yes (DB)	Yes (DB)	Yes (DB)
Do multiple calibrations for same running period need to be stored?	No	No	No

SRO Meeting | BHCal Calibration Needs



- **For more information:** here are a few past presentations with information directly related to the discussion here
 - Summary of BHCal Calibration systems at TIC meeting by **Megan Connors (DSC co-chair)**:
 - › [January 22nd, 2024](#)
 - Discussion of sPHENIX CEMC (and some HCal) monitoring/calibration systems at bi-weekly calo meeting by **Craig Woody & Sean Stoll**:
 - › [December 13th, 2023](#)
 - Overview of sPHENIX electronics readout (and dynamic range estimates) by **John Lajoie**:
 - › [August 9th, 2023](#)
 - Presentations on ML Calibration by myself in various contexts:
 - › [AI4EIC 2023] [November 28th, 2023](#)
 - › [ePIC AI/ML Town Hall] [August 30th, 2023](#)
 - › [2023 EIC UGM EC Workshop] [July 23rd, 2023](#)
 - › [bi-weekly calo meeting] [March 15th, 2023](#)