Making ePIC more epic - muon PID with the LFHCAL -







Nicolas Schmidt (ORNL)



Muon signal in the LFHCAL



- LFHCAL segmentation allows tracing of muon path via MIP signals
 - \rightarrow readout of each scintillator plate preferred
 - \rightarrow works well with current readout scheme as well
- ACTS-based track propagation to each layer
 - \rightarrow matching residuals shown below
 - \rightarrow matching requirement depending on desired efficiency
 - $ightarrow \Delta R < 5.5$ cm chosen for now
- Possible PID via matching requirement in most (all) layers \rightarrow or χ^2 requirement of LFHCAL hits relative to track
- More updates to follow soon...



N. Schmidt (ORNL)

ICAL PO laver (

PIC simulation (u[±]

Muon studies in LFHCAL

May 24, 2023

1/1



Muon signal in the LFHCAL



- LFHCAL segmentation allows tracing of muon path via MIP signals
 - ightarrow readout of each scintillator plate preferred
 - \rightarrow works well with current readout scheme as well
- ACTS-based track propagation to each layer
 - \rightarrow matching residuals shown below
 - ightarrow matching requirement depending on desired efficiency
 - $ightarrow \Delta R < 5.5$ cm chosen for now
- Possible PID via matching requirement in most (all) layers \rightarrow or χ^2 requirement of LFHCAL hits relative to track
- More updates to follow soon...



