ePIC CM Debrief | Day 1 | Priorities

Indications for 2026 Collaboration priorities

From TC Office talk

ePIC Detector

- **Detector holistic performance** studying key physics channels
  - Move the weight from studies without background complement by a preliminary exploration of the results obtained with background to **making the studies with background**
  - To this end**, continuing the coordination with the simulation campaigns** is needed
  - The improvement in the subsystem simulation will also support more and more realistic studies of the detector holistic performance

preTDR Priorities for 2026

From SC Office talk

In 2024, we defined preTDR readiness for software and simulations with the collaboration—and successfully met those goals. In 2025, we renewed our priorities at the Frascati Collaboration Meeting, with many topics already reaching an advanced stage and positioning us well for the next phase. **We will discuss priorities for 2026 during this collaboration meeting.**

Production Provide the simulation campaigns with background to finalize the ePIC detector design and validate its physics performance, roll out Rucio as the default system for finding and accessing simulation data, and automate production workflows.

We have reached a level of complexity in simulation production that necessitates a **workflow management system (WFMS)**. We have decided to use **PanDA** for our current simulation productions. This decision will be revisited in **FY28**, when we evaluate WFMS options for **streaming orchestration** and select one.

Reconstruction Coordinate the effort to address gaps in reconstruction. Work toward a holistic reconstruction approach, such as particle identification that integrates information from calorimeters, Cherenkov detectors, and time-of-flight systems.

Simulation Implement and operate a workflow between detector and simulation experts to track the status of the comparison between the simulation design and the engineering design, and to resolve any discrepancies in a timely and systematic manner.

Streaming Orchestration Define and test the interface between DAQ and computing to mitigate risks in the integrated DAQ-computing system. As part of the integration, test develop and deliver a functional testbed that validates a workflow management system for the autonomous calibration of a detector subsystem.

Workforce Foster a developer community within ePIC and support the careers of scientists focused on software & computing.

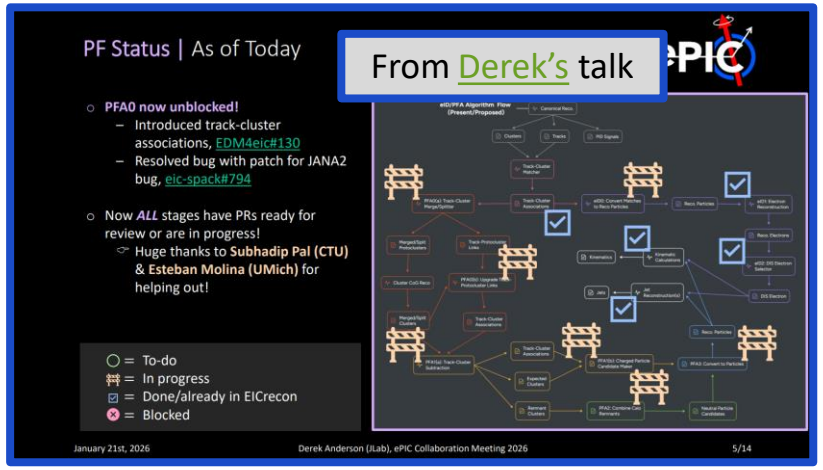
2026 Reconstruction Priorities

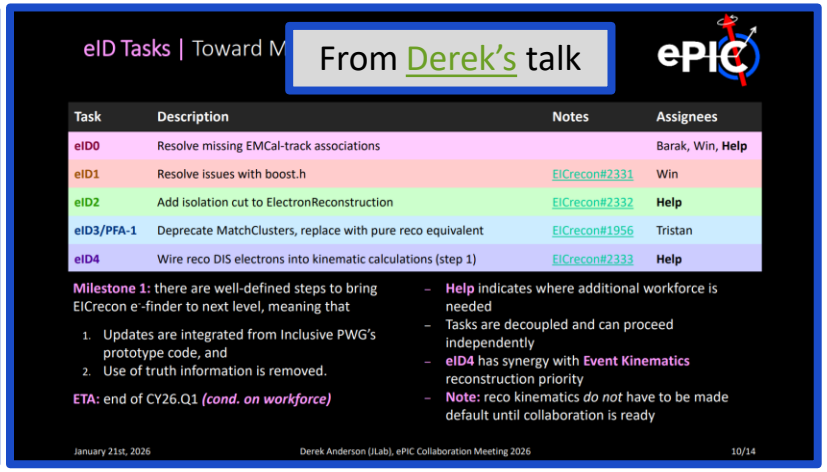
From PAC Office talk

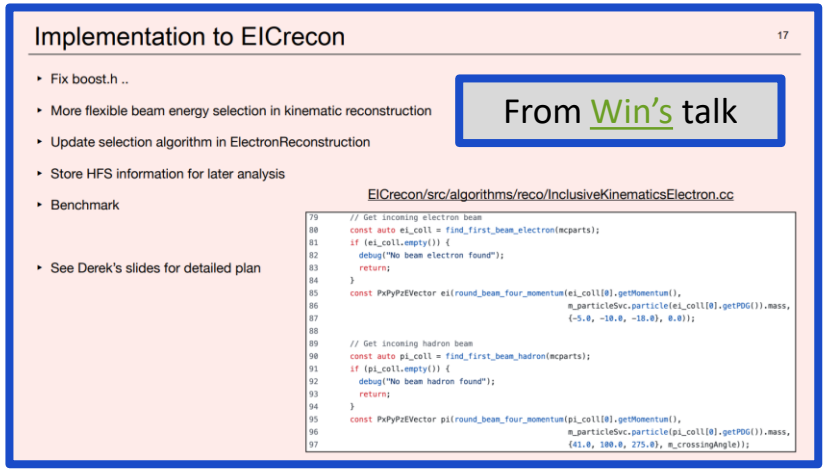
- Will keep pursuing 2025 priorities for 2026 as well!
- Holistic reconstruction
  - There has been a tremendous progress with our reconstruction software, which has enabled many physics performance studies over the past year!
  - Nevertheless, further development of a more realistic holistic treatment of information from different components is crucial
  - **Starting with 2026:** working together with S&C, we prioritize:
    - Development of our **electron finder** into a more complex tool, capable of identifying all electrons candidates and assigning to them a probability, via combining informations from calorimeters, trackers and PID systems
    - Complete the development of a **particle flow** algorithm
    - Development of a **true PID reconstruction**, using the information from all PID subsystems (we are currently using look-up tables)
    - Development of a **muon finder**, using tracker and veto from HCAL

- **Day 1:** welcome, updates from management, and priorities
  - Clear reconstruction priorities from all 3 offices!
  - ☞ **Very Critical:** continuing + improving communication with PWGs + DSCs

ePIC CM Debrief | Day 2 | Early Science (1/2)



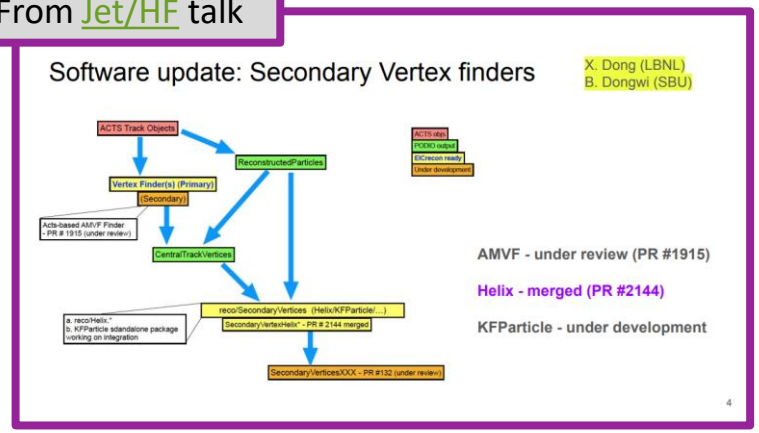




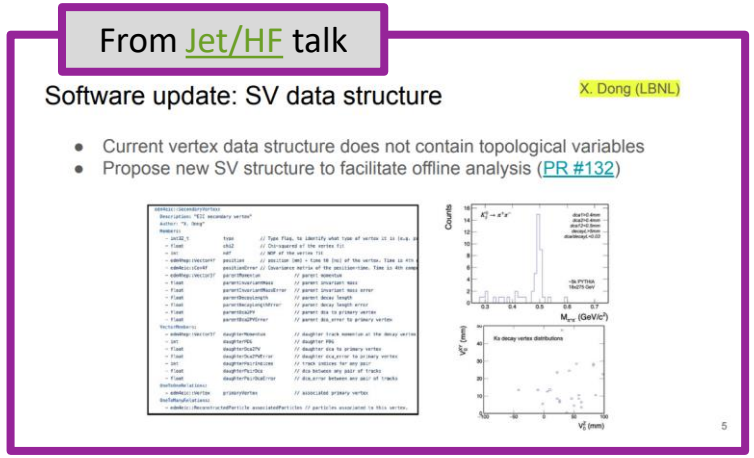
- **Day 2:** parallel sessions
  - Esp. relevant for the Reco WG was the Early Science Workfest
  - Had reports from all PWGs, discussions on backgrounds + systematics, and focused updates on infrastructure (PF + eID)
- **Key points:** from infrastructure updates
  - PRs now open for all stages of PFAlpha except PFA3 (see slides for links)
  - Now developing work plan to better integrate eID + EICrecon
    - ☞ Work on eID1 and eID2 already started!

ePIC CM Debrief | Day 2 | Early Science (2/2)

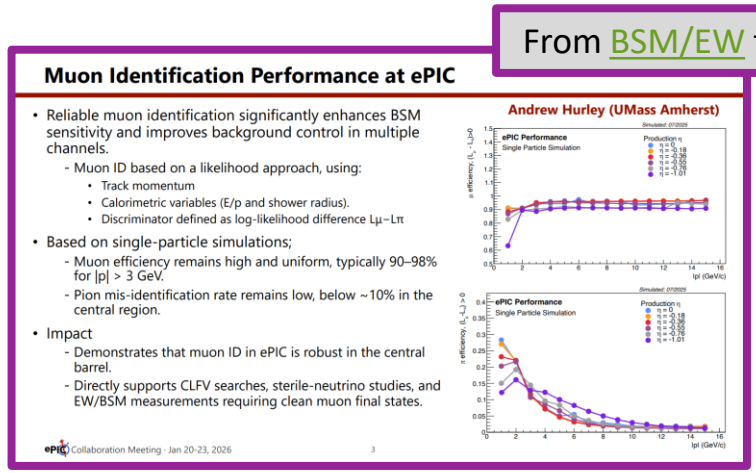
From Jet/HF talk



From Jet/HF talk



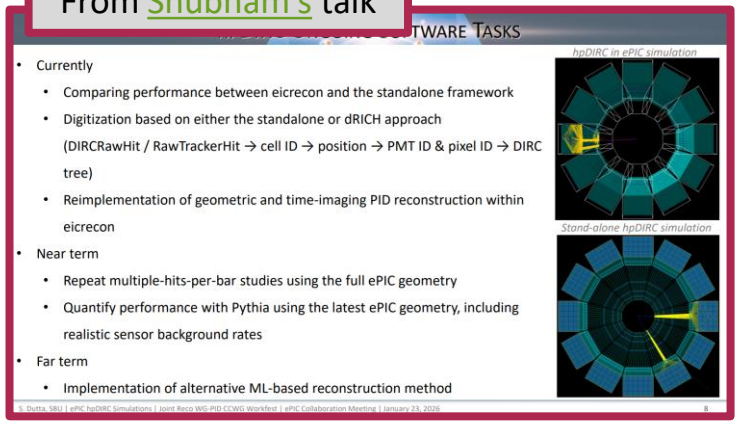
From BSM/EW talk



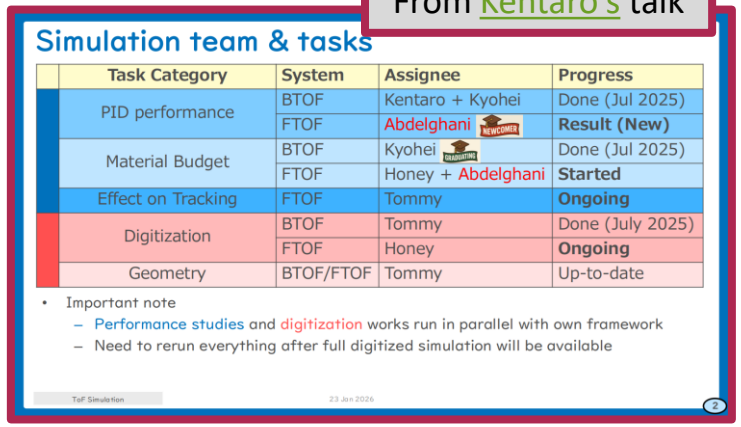
- **Day 2:** parallel sessions
  - Esp. relevant for the Reco WG was the Early Science Workfest
  - Had reports from all PWGs, discussions on backgrounds + systematics, and focused updates on infrastructure (PF + eID)
- **Key points:** from PWG reports
  - Wrapping up SV tasks (AVMF, data model) key effort for Jet/HF PWG
    - ☞ Aim for UGM?
  - Muon ID efforts advancing well, should start thinking about EICrecon integration
    - ☞ Eg. How will this fit into holistic PID?

ePIC CM Debrief | Day 4 | PID CCWG-Reco WG Session

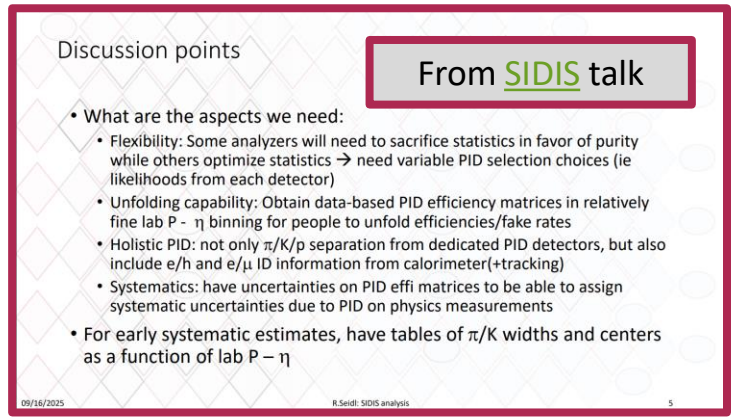
From Shubham's talk



From Kentaro's talk



From SIDIS talk



- **Day 4:** closeout + parallel sessions
  - Important for Reco WG was the joint PID CCWG-Reco WG workfest on PID SW
  - Consisted of updates from RICH, DIRC, and TOF DSCs + open discussion on holistic/global PID
  - Starting point for prototyping global PID reco: have enough for unit tests, except workforce…

- **Key points:**
  - Need to seriously consider compromises/mitigations to balance (1) integrating SW and (2) hitting deadlines
  - DIRC and TOF DSCs in transition period, but expecting this semester to be productive
  - Should consider "pincer maneuver" with PWGs for global PID reco