ePIC Software & Computing News

Weekly Meetings (https://indico.bnl.gov/category/435/)

05/22   Joint Meeting with PWGs
05/29   Collaboration Meeting Planning, Event Display, Artifacts discussion
06/05   Software Release 24.06, planning for Software Release 24.07
06/12   Software and simulation status for TDR, including streaming reconstruction prototype and validation
06/19   No meeting due to Juneteenth
06/26   Joint Meeting with PWGs
07/03   Software Release 24.07, External Wiring and Configuration Management
07/10   WG Reports (in preparation of collaboration meeting)
07/17   TBA
07/24   Collaboration Meeting

Reminder: Software Release 24.06

- **Tagged ePIC 24.06.0 geometry, select notable changes:**
  - ePIC-wide geometry double-check (checks complete except for dRICH, for details issue #730)
  - BIC geometry dimensions update (Maria)
  - Extended FF vacuum (Michael)
  - EEEMCal geometry update (Dmitry, c.f. #704), was one of the priority targets.
  - Updated MARCO field (Wouter)
  - Updated material map (Shujie)
  - Updated MPGD radii (Matt)
  - List of milestones we defined for 24.06.

- **Tagged EICrecon 1.14.0, select notable changes:**
  - Integration for Centauro algorithm FastJet plugin (John)
  - Fix for excessive cluster splitting in ScFi (Akshaya, #1289), was one of the priority targets.
  - Track ambiguity solver (Minjung, Barak et al., c.f. #1383, #1470), was one of the priority targets.
  - Reuse Hadronic Final State for kinematics reconstruction (Tyler, Dmitry, #1453), was one of the priority targets.
  - Store cluster axis direction (Sebouh)
  - Low-Q^2 tagger using ML (Simon)
  - List of milestones we defined for 24.06.

Software Release 24.07 (Milestones)

- **Detector simulation and digitization (ePIC geometry milestone):**
  - ePIC-wide geometry double-check (currently complete except for dRICH, for details issue #730).
  - Realistic timeframe support in simulations (detaila on #1359):
    - Time frames available that include all hits with the MAPS timewindow, pending eic-shell integration.
    - Open questions on time information, mainly for calorimeters.
  - Noise injection during digitization (Derek, Kolja).
- **Reconstruction (EICrecon milestone)**
  - Fix truth-cluster association for HCals in DD4hep (Derek, c.f. #1396)
  - Track-based cluster merging in EICrecon ready (Derek, c.f. #1406), pending on tuning parameters for each of the calorimeter (two weeks from June 5).
  - Use of reconstructed tracks in the electron finder (Daniel, Tristan)
  - Truth associations propagation through ACTS to tracks and projections? (Wouter)
  - Update to recent JANA2 release with time-slice and sub-event support (Nathan)
  - Data model review: Addressing relations / associations between simulation, digitization, and reconstruction
  - ML for far-backward/far-forward tracking reconstruction ?
  - Stretch (not pTDR-critical): RICH reco in EICrecon

WG News

- **Reconstruction Framework and Algorithms**
  - Will continue to actively identify meeting topics and invite groups to present
  - This week: regular recon meeting yesterday https://indico.bnl.gov/event/23797/
    - Productive discussion on truth-cluster associations. Discussion will continue in calorimetry meeting next week
    - Ambiguity solver is merged, and will change the default behavior of BOTH CKFTra*/CKFSeededTra* objects. All unfiltered tracks (including overlaps and splitted branches) are now stored in "UnfilteredTra*"
  - Next recon meeting will be **June 18th**
    - streaming reconstruction
  - Please help us identify needs on ACTS upgrade (will be discussed on Thursday tracking meeting).

- **Production**
  - Nearing completion on XrootD integration. (recently discovered a small miss-configuration)
  - Prep work for Rucio integration

- **User Learning**
  - Please submit your liaison volunteer to Holly if you have not already (physics WG). First meeting will be announced soon!

- **Validation**
  - Image browser has updated Contact forms, one for general email and another to add a new plot type to the page. Details next week.

Software & Computing Conferences and Workshops

MC4EIC 2024

June 5–7, Institute for Particle Physics Phenomenology (IPPP), Durham University, Durham, England.

https://conference.ippp.dur.ac.uk/event/1292/

Software Infrastructure for Advanced Nuclear Physics Computing

June 20–22, Jefferson Lab.

https://www.jlab.org/conference/2024SANPC

PyHEP 2024 Users Workshop

July 1–4, Remote.

https://indico.cern.ch/e/PyHEP2024

Deadline for abstract submission: extended to **May 31**.

SciPy 2024

July 8–14, Tacoma, WA.

https://www.scipy2024.scipy.org/

Session on "Playing Nice: Scientific Computing Across Programming Languages"

PyHEP.dev 2024

August 26–30, Aachen, Germany.

https://indico.cern.ch/e/PyHEP2024.dev

Software & Computing Conferences and Workshops

CHEP 2024

October 19–25, AGH University of Kraków, Institute of Nuclear Physics Polish Academy of Sciences and Jagiellonian University, Kraków, Poland.

https://indico.cern.ch/event/1338689/

Submitted five abstracts

Track 2 - Online and Real-Time Computing:
- Nathan Brei: Reconstruction Framework Advancements for Streaming Readout for the ePIC Experiment at the EIC

Track 5 - Simulation and Analysis Tools:
- Sakib Rahman: The ePIC Simulation Campaign Workflow on the Open Science Grid

Track 6 - Collaborative Software and Maintainability:
- Dmitry Kalinkin: Collaborative Software and Maintainability for ePIC Experiment at EIC

Track 7 - Computing Infrastructure:
- Wouter Deconinck: Cache Rules Everything Around Me: Building ePIC Containers With Spack

Track 8 - Collaboration, Reinterpretation, Outreach and Education:
- Maxim Potekhin - Collaborative Tools for the ePIC Experiment