

ePIC Software, Computing, and Physics Discussion on **May 17**

ePIC Software, Computing and Physics Discussion

Wednesday May 17, 2023, 11:00 AM → 12:30 PM US/Eastern

Markus Diefenthaler (Jefferson Lab), Rosi Reed (Lehigh University), Salvatore Fazio (University of Calabria and INFN-Cosenza), Sylvester Joosten (Argonne National Laboratory), Torre Wenaus (BNL), Wouter Deconinck (University of Manitoba)

Description We will discuss the priorities of reconstruction tasks required for the physics analysis of simulated data, as well as the priorities of physics benchmarks needed for the continuous assessment of the ePIC detector's physics reach. The meeting aims to assign tasks to the workforce in the Physics and Software & Computing WGs and set goals for the next simulation campaigns.

We will use Zoom for the remote meeting:

- <https://jlab-org.zoomgov.com/j/1614875218?pwd=RFRRPcGINM3BaS0pQaDhxS3JURkdJZz09>
- Meeting ID: 1614875218
- Password: 925723

Live Notes

11:00 AM → 11:15 AM Update from ePIC Analysis Effort

- 11:00 AM List of outstanding task and priorities by the PWGs** (10m)
Speakers: Rosi Reed (Lehigh University), Salvatore Fazio (University of Calabria and INFN-Cosenza)
Attachment: RReedEPIC0517202...
- 11:10 AM Questions** (5m)

11:15 AM → 11:45 AM Update from the ePIC Software & Computing Effort

- 11:15 AM ePIC Reconstruction Status and Plans** (10m)
Speakers: Andrii Verbytskyi (MPP), Derek Anderson (Iowa State University), Sylvester Joosten (Argonne National Laboratory)
Attachments: 2023-05-17-Recons..., EPIC_May_2023_An..., Google slides
- 11:25 AM Questions** (5m)

11:30 AM ePIC Physics Validation Status and Plans (10m)
Speakers: Dmitrii Kalinkin (University of Kentucky), Torri Jeske (Jefferson Lab), Wouter Deconinck (University of Manitoba)
Attachment: validation_0517202...

11:40 AM Questions (5m)

11:45 AM → 12:30 PM Reconstruction and Physics Benchmarks Tasks and Priorities

- 11:45 AM Tasks assigned to the Reconstruction WG (Workforce, Coordination)** (30m)
- 12:15 PM Tasks assigned to the PWGs (Workforce, Coordination)** (15m)

AC/SC meeting: <https://indico.bnl.gov/event/19473/>

Detailed minutes [available](#).

Rosi and Sal: Key priorities for the reconstruction from the perspective of the PWGs.

Sylvester: Thorough update on the reconstruction status and plans. **Andrii:** Update on DIS lepton finder.

Torri: Validation strategy and the need for physics benchmarks.

Excellent discussion, mainly on the reconstruction.



Reconstruction Tasks

Electron Finder: Developing an efficient and accurate algorithm for identifying electrons and the scattered electron of the DIS process.

- **Overall status:** Baseline implementation completed.
- **Updates for December campaign:** Initial algorithms on electron finding or DIS lepton finding included (**tbc**).

Vertexing and PID: Enhancing the vertexing and PID capabilities to study heavy flavor physics.

- **Overall status:** Focusing on the primary vertexing algorithm and upstream algorithmic infrastructure.
- **Updates for December campaign:** None.

Particle Flow: Improving the jet reconstruction using particle flow information.

- **Overall status:** Baseline implementation PFAlpha ongoing. Aimed for December campaign but delayed to later in December.
- **Updates for December campaign:** None.

Low Q^2 : Integration of the low- Q^2 tagger for precise measurements of photo and vector mesons production.

- **Overall status:** Baseline implementation available, pending on AI integration in ePIC reconstruction and productions workflows. Improvements for moving to streaming frames will full backgrounds under development.
- **Updates for December campaign:** None.