

Analysis/Physics Priorities for 2025

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ePIC Collaboration Meeting

Frascati (Italy)

January 20-24, 2025

General remarks by John relevant to analysis



- **There is a need for better communication within the collaboration, across multiple different entities**
 - Not a single problem with a single solution
 - Accelerate development of and transition to the website
- **Need a better way to grow/onboard analysis efforts**
 - Not just software! Onboard analysis as well
 - Common reconstruction tools facilitate higher-level analysis efforts
 - Use Early Science studies as a focus for efforts in analysis and engagement with theory
- **Need to define a set of 2025 milestones for progress in simulations**
 - This includes simulation framework, fidelity to the mechanical design, inclusion of backgrounds, and reconstruction and common tools
 - Work with DSC's to set software goals, SCC to support
 - Define how we work towards simulation reconstruction in timeframes
- **Workforce and Engagement**

Communications



We have heard loud and clear that communications is still an issue in ePIC!

○ Improve horizontal communications

- Communications with Software & Computing
 - Use our weekly **AC/SCC** meeting more regularly
 - Better plan our monthly analysis & S&C meetings
- Communications with subsystems
 - Work with TCs to establish channel of communication between PWGs and key subsystems

○ A maintained central platform for detailed information

- Crucial for onboarding and to inform people not constantly able to attend all the meetings
- **Priority:** accelerate website and wiki integration
 - After completing the integration, it's best to phase out (or repurpose) the wiki

Reconstruction & analysis tools



- Definition of kinematic variables
 - Dedicated section in Ch.2 of the TDR
- Reconstruction tools based on multiple subsystems (joint w/SCC)
 - Needed for realistic analyses / impact studies and to inform detector decisions
- Common reconstruction tools to facilitate higher-level analysis efforts
 - Reconstructed kinematics (with multiple methods) available to the end user
 - Prioritize the electron finder development with info from multiple subsystems
 - Prioritize vertexing. **Secondary vertices** crucial for heavy flavor (joint priority w/SCC)
- **Common AS/SCC priority:** progress with finalizing simulation framework, fidelity to the mechanical design, inclusion of backgrounds, and reconstruction and common tools
 - **Next joint S&C/analysis meeting on Feb 5th will be dedicated to set priorities and a roadmap for 2025**

Validation & release of results



- Common standards for analysis and validation of results
 - Potential incoherences between internal results of some analyses
 - When a certain result can be declared “preliminary” and how it is validated?
 - **Priority:** work with the PWG conveners to set standards during 2025
- Presentation of results to the outside community
 - Often talks are submitted at the very last minute and directly to the ePIC talks list!
 - This can easily bypass conveners who will not catch that email in time
 - **Priority for 2025:**
 - Work with the talks committee to better enforce our policies
 - Enforce use of Zenodo to help with the approval chain
 - Perhaps training is necessary?

Onboarding of new groups



- What people should do to join analysis efforts?
 - PWGs are the portal to ePIC physics studies
 - Conveners oversee the onboarding
 - **Priority:** ACs will work with PWG conveners in setting up standards for:
 - an effective and efficient onboarding of new collaborators
 - assigning well-defined tasks and tracking progress
- A central and better maintained platform and analysis examples are crucial
 - Navigating ePIC's github, wiki, webpage, newsletters, indicos, RUCIO... can be a challenge!
 - We have seen large benefits from the "landing page"!

ePIC – a collaboration driven by Science (?)



P. Antonioli's report at the C.C.

756 individuals on detectors (176.4 FTE)

136 individuals on physics (23.1 FTE)

are we "balanced"?

- ~23 FTEs (including conveners and coordinators) spread among 5 PWGs
 - some PWGs are left with just 2/3 people doing hands-on analysis work
 - and we want to spell out physics requirements in the TDR, develop an Early Sc. Case...
- While **detector/hardware efforts remain a priority** at this point in the lifetime of the Collaboration, **this level of imbalance is not sustainable!**
- **Please consider reprioritize/rebalance the workforce in your groups**

TDR and Early Science



- Chapter 2 needs to grow into polished document with a coherent text
 - **Priority:** ch.2 must provide clear requirements set by the science
 - **Priority:** assign internal and external reviewers to guide us through the process
- Define an Early Science case for ePIC
 - Use Early Science studies as a focus for efforts in analysis and engagement with theory
 - Keep/improve communications with theorists and the project
 - Final product should be a published ePIC paper
 - **Priority:** define a clear and achievable roadmap to the final product

High-level analysis priorities for 2025



In view of these considerations, the following list highlights out high-level priorities for 2025

- ❖ **Priority 1:** Increase Analysis engagement —> Need to include analysis “module” attached to SCC landing page so people can go from learning to make histograms to real analysis
- ❖ **Priority 2:** Increase realism for physics observables —> Multiple issues - need more “physics objects”, need PID/eID
 - Work with SCC to develop a boundary between what is in the data model and what is under analysis macros/scripts
- ❖ **Priority 3:** Efficiently connect tasks with workforce – improve onboarding
- ❖ **Priority 4:** Determine the “best” observables for the early science case and what is needed for impactful measurements
- ❖ **Priority 5:** Develop a results validation scheme for talks/reviews/documentation