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Computing Team



4th ECCE IB Meeting,
May 10 2021

Computing Resources

- We had an SDCC-ECCE Meeting on May 4 with Jerome Lauret and Graham Hayes. BNL SDCC and JLab SciComp have each committed the equivalent of 2k cores for 4 months.
- Some expectation we should get equivalent (4k total) from opportunistic OSG cycles
- A request was made for 2PB of storage via S3 at SDCC. This is in process.
 - Contact identified in OSG to help with file transfer back to S3 managed storage. This will be needed for non-BNL run jobs.
- All of the above are committed to EIC and must be shared between the proto-collaborations (CORE, ECCE, EIC@IP6).
- A recent announcement was made of a Computing Coordination Group (CCG) for EIC.
 - This will include 2 representatives from each proto-collaboration
 - We have already reached out to Andrea Bressan (already named to CCG) to ask about mechanism for allocating shared resources
 - Until CCG is up and going, the JLab resource for EIC will be first-come-first-served

Computing Resources

- Bi-weekly meeting schedule for Computing and Software has been set by Joe Osborn Wed, May 12, at 1 PM EST <https://indico.bnl.gov/event/11664/>
- Working on the following details:
 - How to manage storage (catalogue, directory structure)
 - Preliminary discussion with Maxim Potekhin on cataloging data
 - How to provide access to simulated data for all users (e.g., those without BNL access)
 - Some preliminary work has been done by Jerome and Graham to federate BNL and JLab authentications
 - How to manage requests from both PWGs and DWGs
- Test jobs have been successfully run at Bates, which may have some availability to run small campaigns upon request (no official allocation made)

Artificial Intelligence

- AI has been successfully used to optimize the [dual-RICH detector in the JLEIC design](#). We want to select targets within the detector design amenable to optimization (e.g., a sub-detector or a system of sub-detectors).
- In coordination with the Detector Team, we have been meeting with DWGs
 - Already had discussion with the PID
 - Today we will discuss with Far Forward and Tracking
 - Waiting for reply from Calorimetry
- Kick-off meeting will be announced this week --- meeting schedule set by William Phelps
 - Discussion on status of simulations/reconstruction of sub-detectors
 - Characterization of dimensionality of design parameter space and identify objectives
 - Identify open tasks and distribute work within AI WG

Artificial Intelligence

- U. of Regina has been working on prototyping an optimization pipeline based on the examples of the EIC_Fun4All_Tutorials
- Used the Fun4All_G4_Momentum.C exercise to simulate the tracker. Modified the geometry by changing the radius of each Si Layer
- Used 10k sample of pions at 4 GeV Momentum
- Optimizing scalarized function taking into account ratio of reconstructed to generated momentum and resolution

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