Purpose of the July Campaign

Earlier in May, we received updated estimates from the EIC Project for the collected luminosities associated with different beam energies and species during the Early Science period.

Species	Beam energy (GeV)	Integrated luminosity	Electron-beam polarization	Hadron-beam polarization
e+Ag	9×115	1.0 fb^{-1}	NO	N/A
e+D	9×130	1.5 fb^{-1}	LONG	NO
$e + p$	9×130	1.0 fb^{-1}	LONG	TRANS and/or LONG
$e + p$	9×275	2.5 fb^{-1}	LONG	TRANS and/or LONG
e+Au	9×100	1.0 fb^{-1}	LONG	N/A
$e + {}^3\text{He}$	9×166	1.5 fb^{-1}	LONG	TRANS and/or LONG

Table 1: EIC Early Science Matrix. The eA luminosity is per nucleon.

Decisions

Early Science Report: Use the April campaign with the original settings, with the luminosities in the Early Science studies rescaled accordingly.

NIM-A Special Issue: Use simulation productions based on the revised beam energies and species. **Target: July**.

Preparations for the July Campaign

- **Software stack** was updated to provide capability to simulate and process **9 GeV electron samples** in late April.

- Production WG has contacted PWGs regarding requests and updated input files.
- Automated production workflows will be presented at the collaboration meeting, with a preview at the ePIC Software & Computing meeting on June 24.
- Until then, we will continue using the **existing workflow**:
  - Coordinate with your PWG and the PACs.
  - Generate MC input following our **guidelines**.
  - Submit requests through the **request form** once the input file is available.
  - **Clarification:** Requests should be submitted through the **Google Sheet, not via PRs**.

- The collection of new data files is progressing well. The only known issues are with BeAGLE and are being addressed by the developer.

Background Simulation Status and Plans

MC sample production is blocked pending updated ESR lattice files

- Updated ESR lattice files for 5, 9, and 18 GeV are still pending and are likely not available before the end of June.
- Beam-loss simulations for electron beam-gas and Touschek backgrounds must be rerun with updated lattices and collimator settings.
- At least one month is needed between receiving the lattice files and delivering the MC samples.

Back-of-the-envelope estimates

- The 9 GeV synchrotron-radiation load on the IP beam pipe is expected to be similar to the 10 GeV case, unless the beam-pipe geometry changes significantly.
- Reducing the beam energy from 10 to 9 GeV gives an approximate 30% reduction in synchrotron-radiation background rates.

An option for the July campaign

- For ESR beam-gas and Touschek backgrounds at all energies, use the existing samples.
  - Assumption: collimation-system performance is similar across lattice versions, and 9 and 10 GeV losses are very similar.
- For synchrotron radiation:
  - 5 and 18 GeV: use existing samples.
  - 9 GeV: scale from the 10 GeV sample by reducing synchrotron-radiation hit rates by 30%.

Campaign Dataset Catalogue and Verification Tools

Dataset Catalogue https://eic.github.io/epic-prod/documentation/default_datasets.html

- It is based on the **Overview Tracking Spreadsheet** but includes a much more detailed provenance record.

Verification Tools (inside eic-shell)

- **Check Campaign Availability:** Run this snippet to check the availability of specific samples in a given campaign month: https://github.com/eic/snippets/blob/campaign_info/SimulationProduction/check_campaign.py
- **List Files by DID:** Run this snippet to write out the individual files available under a particular DID: https://github.com/eic/snippets/blob/campaign_info/SimulationProduction/check_storage.py