

# Simulation Campaigns for the Early Science Program Development

The context of this presentation is simulation campaigns supporting the development of the Early Science Program for the EIC. It does not address other priorities for simulation campaigns in the coming year.

- BNL and Jefferson Lab requested, by May 1, “*a short document summarizing the science that would be possible from those early data.*”
- In this discussion, we assume that the report deadline will not change.
- We therefore consider three simulation campaigns:

25.12	<ul style="list-style-type: none"><li>• Available.</li></ul>
26.02	<ul style="list-style-type: none"><li>• In preparation.</li></ul>
26.03	<ul style="list-style-type: none"><li>• In preparation.</li></ul>

# Simulation Campaign: Status and Plans

25.12	<ul style="list-style-type: none"><li>• The December campaign covers all requests by the PWGs, including priority levels 2, and 3.</li><li>• It contains selected productions with background at the 10GeV×100GeV beam energy setting.</li></ul>
26.02	<ul style="list-style-type: none"><li>• The February campaign will include all requests, including priority levels 2 and 3. It will start as soon as the 26.02 software release is available.</li><li>• The campaign will be based on the current set of requests and will also include background as requested.</li><li>• There is an opportunity to update request priorities, including the removal of requests. Only PACs and SCCs can modify priorities.</li></ul>
26.03	<ul style="list-style-type: none"><li>• The March campaign provides an opportunity to include new features and MC input files.</li><li>• Feedback from the PACs indicates that there is no urgent need for new features,</li><li>• but there may be a need for additional MC input. This will require coordination.</li></ul>

# New Simulation Production Requests

- We provide an [overview of requested simulation productions from DSCs and PWGs](#).
- If you would like to request a simulation production that is not included in this overview, please follow these steps:
  1. Coordinate with your PWG and the PACs. The PACs will update the overview and assign a priority to your request.
  2. Generate the MC input following our [guidelines](#).
  3. Once the input file is available, submit your request via [our form](#).

## Deadlines

- The deadline for new simulation production requests for 26.02 has passed.
- **The deadline for new simulation production requests for 26.03 is Monday, February 16.**
  - This allows sufficient time to test the input files using a small production.
  - Please note that the PWG is responsible for ensuring that MC input files meet the guidelines. Files that do not meet these guidelines will not be accepted.

# Requests

**Request:** Please communicate any production-specific requests to Holly, Sakib, and Thomas, and ensure that all three are contacted.

**Request specific to PAC:** Could you please ensure that, by the end of this week, the overview of requested simulation productions from DSCs and PWGs is up to date?

**Request specific to PWGs:** Please critically review your requests:

- Is background needed for the study?
- What is the minimal amount of statistics required for the study?

Please revise your requests accordingly. For larger requests, a justification is required. See [our form](#) for details.

# Backup

---

# Status of Mixed Background Simulation and Reconstruction

---

- The 10 GeV synchrotron background HepMC3 input files were provided in late October.
- An initial issue with memory consumption during reconstruction was identified and resolved in early November, reducing memory usage to a reasonable level ([EICrecon issue #2174](#)).
- The November campaign was skipped.
- During the December campaign, we produced limited samples of  $10 \times 100$  and  $10 \times 275$  NC DIS for  $Q^2 > 1$ , with one signal per 2us timewindow.
- A second issue related to the large number of intermediate track states was resolved in January ([EICrecon issue #2245](#)).
- We will begin running mixed background samples at larger scale starting in February.