Subject: Summary of TIC meeting on April 13: Background challenges, feedback - second session
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Dear Colleagues,

please find here below a short summary of the April 13th TIC meeting dedicated to Background challenges, feedback - second session. This summary is arriving late:
I forgot to circulate it. Please, accept my apologizes.
Please, also **note the topic in the communication session**.

Best greetings, Silvia

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TIC meeting, April 20th - Summary

Important Communication by the Project Representative in the TIC.
In a few slides (https://indico.bnl.gov/event/31904/contributions/120952/attachments/69389/119061/ePIC.TIC.pptx)
it is illustrated how to request Resources – Space and RHIC Items for Re-use.
The path is from DSCs to CAMs, who will then forward the request to the Project Management.
In the slide there are the links to the tables where these requests are collected.

Background challenges, feedback - second session.

EEMCAL
Extended studies have been performed. The results are summarized as follows:
The effect of beam background on the EEEMCal using the 10 um Au coating of the beam pipe was studied in DIS MC:

- The background effects are found to be modest to the extent they could be tested with the avilable samples;
- EEEMCal rates will be dominated by background, but still within DAQ expected capabilities;
- Neutron fluence was evaluated for 1 /fb of data;
- Noise from dark current in SiPMs evaluated to be below expected threshold after 150 /fb.

Planning: refine the performance studies with different simulated files to enhance the background role;
in fact, particularly for e/pi separation, the event sample where a DIS event is always present is not ideal.

Forward ECAL

As of Feb 2026 simulation campaign, new forward ECal geometry code is in
place, matching the current design with real segmentation.
The comparison of Feb 2026 simulation campaign (10 x 100) without and with Beam
Background does not indicate any significant loss of performance due to beam background
(# of hits, total energy, # of clusters, cluster energy, # of hits in cluster, neutral jets : # of jet, jet energy, mass, rapidity, # of clusters)
Tracking+Ecal jet studies provide puzzling results when background is present: this is most likely related to
using tracking reconstruction without the appropriate cut on the minimum number of requested hits to reconstruct a track,
a requirement going now to become a fixed ingredient in track reconstruction.
Using the new radiation map, the hit rates are consistent with those used in the past for the studies of hit rates
and the doses are not a concern.
Planning: working on pi0 reconstruction code for day1 calibration with/without BG;
cross-check that the Tracking+Ecal jet studies provide consistent results when the appropriate cut on the minimum number of requested
hits to reconstruct a track is applied.

Barrel ECAL

About occupancy and hit rate studies, the maximum hit rate increases only marginally from 2.2 to 2.5 Hz, well below CALOROC rate limit.
Concerning neutron energy measurement, the studies are in progress and it is anticipated that a minimal effect from background in BHCal
is expected.
No issue of radiation damage is expected for BHCal because of the low radiation level.
Planning: complete the performance studies.

BIC and nHCAL reports postponed to next meetings.

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