**GD/I meeting, November 21st, 2022**

**Minutes**

**Calorimeter Insert for EPIC forward HCal**, M. Arratia, (on behalf of the insert team)

A very complete report has been presented including:

* physics motivations,
* description of the current design of the device,
* integration aspects and related challenges,
* acceptance,
* performance from stand-alone simulation studies,
* the insertion of the device in the global ePIC simulation and first outcomes,
* comparison with historical approaches for calorimetry in the very forward direction and with other current projects of calorimetry in similar phase-space regions,
* cost estimates,
* current dedicated workforce and
* planning for the coming R&D activity.

The report shows a robust project developed thanks to a motivated and active workforce and a moderate cost. It is convincing in term of physics motivation. The R&D planning, including simulation studies, is well structured and it addresses the main open options of the project. An important  point that requires a deeper assessment is the integration of the insertion and the forward HCal.
The GD/I conveners recommend that the integration aspects are clarified in view of the request by the proponent group of the adoption of the forward HCal insertion in the baseline of the ePIC detector. Among the integration items, important points that require a deeper assessment there is the integration of the insertion and the forward HCal, including minimizing dead area between the two detectors, hadron response cross the boundary, and joint calibration strategy and the engineering integration aspects.

**First findings obtained with the data of the simulation campaign.**

**Tracking** (Laura Gonella reporting)
The Tracking subsystem has been integrated in the two simulation configurations, with 5 barrel Si layer and 2 or 1 MPGD layers ( configurations Arches and Bryce Canyo, respectively) and 5 Si disks in the end caps, with long lever arm in the forward (135 cm) and short in the backward (115 cm), the last one for compatibility with pfRICH. Several main issues have been solved (missing MPGD hits, field map).
Study of different B-field configurations points to 10-20% worse dp/p with
correct B-field map.The simulation work is in progress.

**Calorimetry** (Carlos Munoz reporting)
So far, several studies with particle gun simulations (electrons, pions) have been performed. Highlights of the status:

* backward HCal: low reconstruction cluster energy (optimization of the parameters ?)
* backward ECal: energy resolution as expected;
* barrel ECal - SciGlass: effect of the material  before the calorimeter and of the gaps between
the calorimeter blocks under study;
* barrel Ecal - imaging: still in the phase of solving clusterization issues;
* barrel HCal: the current implementation (from the sPhenix one) provides reasonable simulation;
* forward ECal: energy resolution as expected;
* Forward HCal: low efficiency under investigation;
* forward calorimeter insert: present in the simulation and running.

**Far forward** (Alex Jentsch reporting)
No events processed which are really targeted far-forward. The issue of a large portion of the FF detector missing has been solved. The progress on track reconstruction in the CD is needed to progress
in the FF simulation studies, in particular for B0.