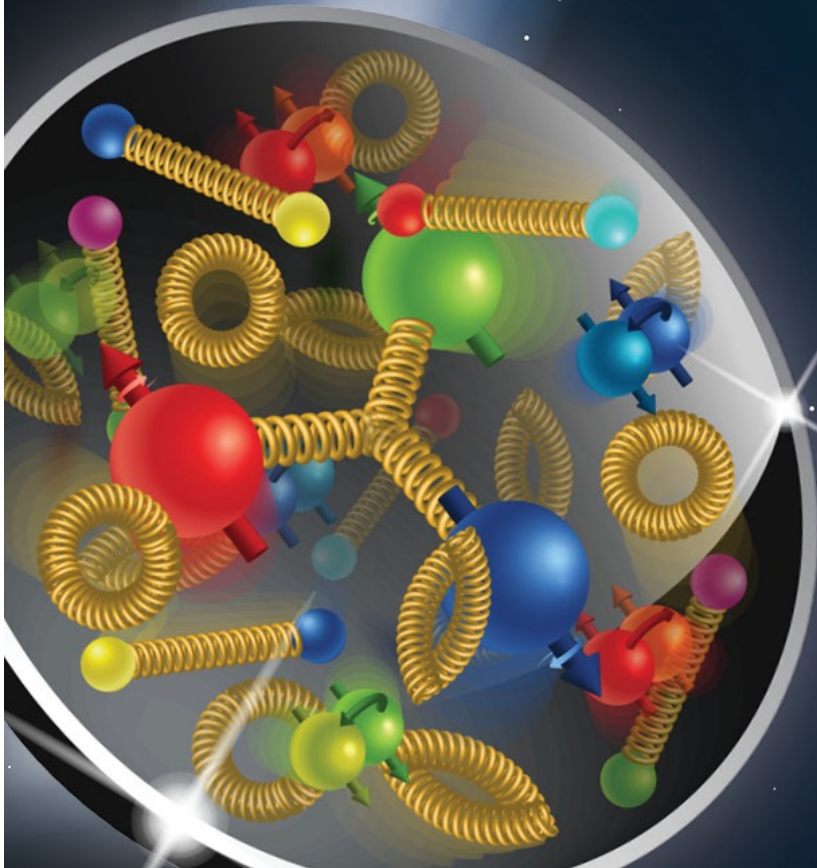


For the EIC Detector Calorimetry Review



A. Bazilevsky and A. Kiselev
L3/CAM for EMCal and HCal
EPIC Calorimetry Meeting

November 2th 2022

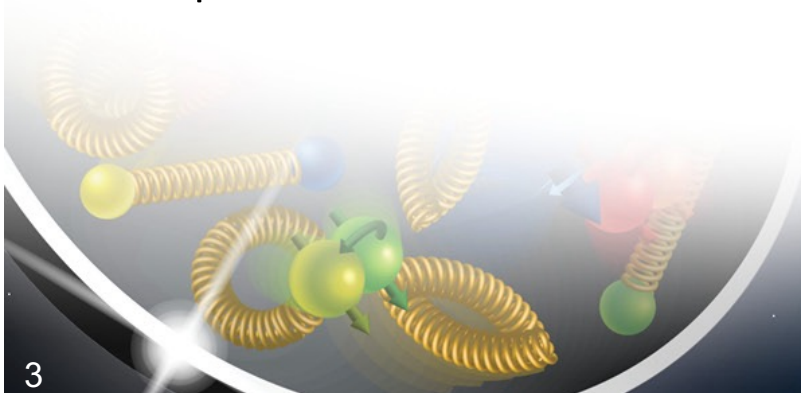
- ❑ October-December – EIC Subsystem Status Reviews on Tracking, Particle Identification Systems, Electromagnetic Calorimetry, Hadronic Calorimetry, Infrastructure/Installation, Polarimetry
 - already completed
 - Magnet Incremental Design and Safety Review (6.10.07) – Preliminary 30% Design
 - IR Integration and Ancillary detectors (6.10.11)
 - Electronics/Computing Subsystem Status Review (6.10.08 & 6.10.09)
 - Magnet Incremental Design and Safety Review (6.10.07) – 60% Design
 - in planning stage
 - Calorimetry Review (6.10.05 & 6.10.06) – **First two weeks December**
 - Polarimetry Review (6.10.14) – **Aim before end of CY**
 - Incremental Integration/Installation Review – waiting for sPHENIX installation schedule
 - To do beyond
 - Tracking Review (6.10.03)
 - Particle Identification Review (6.10.04)
 - Infrastructure Review (6.10.10)
 - Magnet Incremental Design and Safety Review (6.10.07) – 90% Design ~September 2023
- ❑ DOE OPA Status Review - Confirm CD-2/3A Plans Jan. 31 – Feb. 2, 2023
- ❑ Preliminary Design and Director's Reviews June 2023
- ❑ DOE CD 2/3A OPA Review and ICR, requires pre-TDR October 2023
- ❑ DOE CD 2/3A ESAAB Approval January 2024

DRAFT!!!!

Incremental Design and Safety Review of the EIC Detector Calorimeters

Charge to the Committee

The scope of this review includes all aspects of particle detection using the electromagnetic (EMCal) and hadronic (HCAL) calorimeter systems in the central EIC detector, which includes the barrel, the forward endcap, and the backward endcap regions. This may include design and fabrication choices and their cost-effectiveness, granularity, optimization of energy and position resolution, construction schedule, early considerations for safety and quality assurance, levels of redundancy, front-end electronics and interface to the data acquisition system, commissioning and calibration procedures, considerations for materials and labor, operational reliability and longevity, and any other considerations that may influence the construction and operation of these calorimeters.

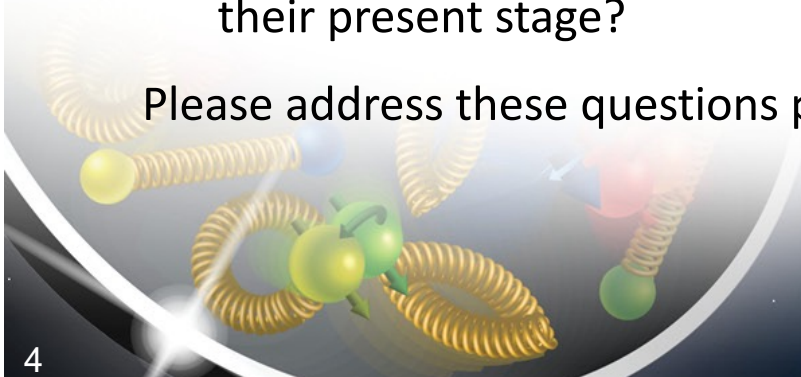


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You are asked to address the following questions:

1. Are the technical performance requirements appropriately defined and complete for this stage of the project?
2. Are the plans for achieving detector performance and construction sufficiently developed and documented for the present phase of the project?
3. Are the current designs and plans for detector and electronics readout likely to achieve the performance requirements with a low risk of cost increases, schedule delays, and technical problems?
4. Are the calorimeter fabrication and assembly plans consistent with the overall project and detector schedule?
5. Are the plans for detector integration in the EIC detector appropriately developed for the present phase of the project?
6. Have ES&H and QA considerations been adequately incorporated into the designs at their present stage?

Please address these questions point-by-point.



Timing: 2 days, period of November 28 to December 14 (preferentially November 28 - December 9). Assume each day from 8 am to 2 pm EST, or 2 pm to 8 pm CET.

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Agenda Day-one (note that each talk time assumes more than 1/3 of time for questions and discussion)

- 30 min Executive Session (Closed Session) – needs some time as context important
- 30 min Welcome and Introduction (introduce the general project status) – Elke/Rolf
- 30 min Electromagnetic Calorimetry Overview and Requirements – Sasha Bazilevsky (BNL)
- 30 min Hadronic Calorimetry Overview and Requirements – Alexander Kiselev (BNL)
- 30 min Overall Detector Integration Status and CAD Design – Roland Wimmer or Rahul Sharma (BNL)
- 30 min Break
- 40 min Backward Electromagnetic Calorimetry detector and integration –
Carlos Munoz Camacho (IJCLab) and engineer
- 20 min Backward Hadron Calorimetry detector upgrade (material distribution and impact on magnet design, backward HCal requirements, simulations and feasibility –
Leszek Kosarzewski (CTU Prague)
- 40 min SciGlass-Based Barrel Electromagnetic Calorimetry detector and integration –
Tanja Horn (CUA) and Josh/Avishay
- 20 min Imaging-Calorimeter Barrel Electromagnetic Calorimetry alternate option – TBD (ANL)
- 60 min Executive Session – Discussion

Agenda Day-Two

- 30 min Barrel Hadronic Calorimetry detector and upgrades – John Lajoie (ISU)
- 40 min Forward Electromagnetic Calorimetry detector and integration – Oleg Tsai (UCLA) and engineer
- 40 min Forward Hadronic Calorimetry detector and integration – Friederike Bock (ORNL) and engineer
- 20 min Calorimetry Electronics Overview – Fernando Barbosa (JLab)
- 20 min Forward Hadronic Calorimetry electronics – Gerard Visser (Indiana)
- 30 min Break
- 3 hr Executive Session and closeout