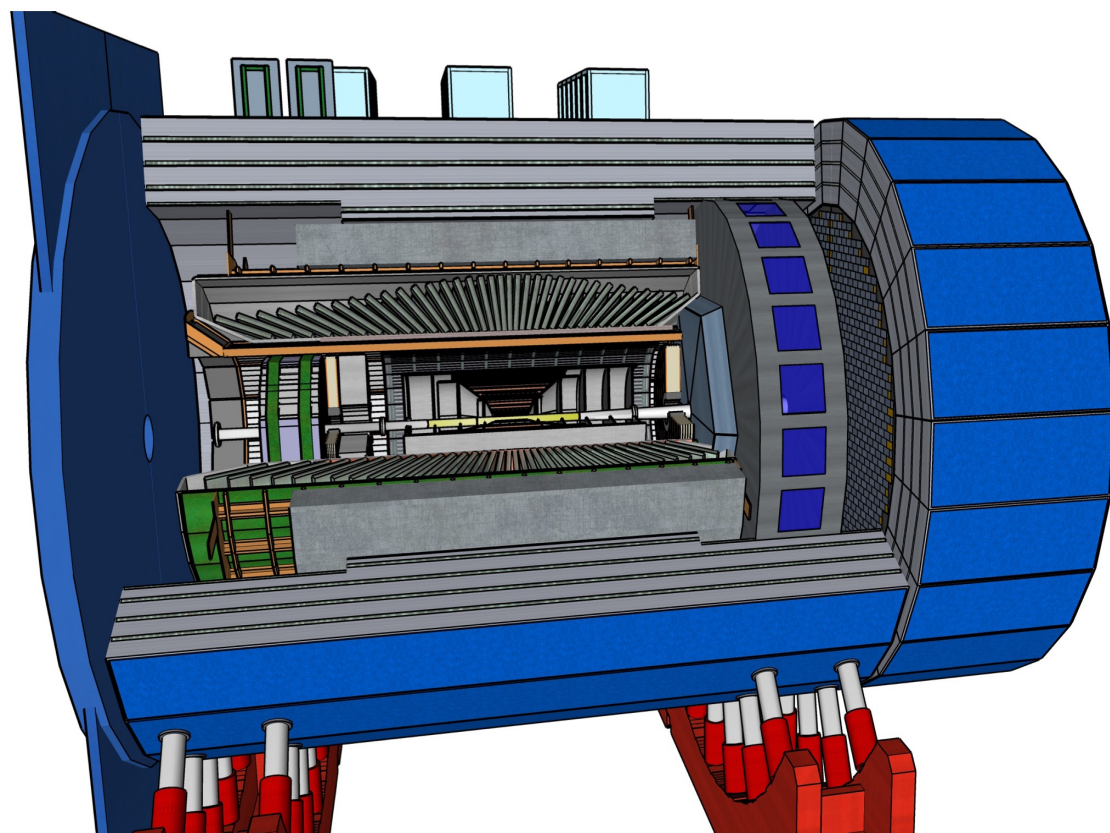




EIC Comprehensive Chromodynamics Experiment



Introduction To ECCE

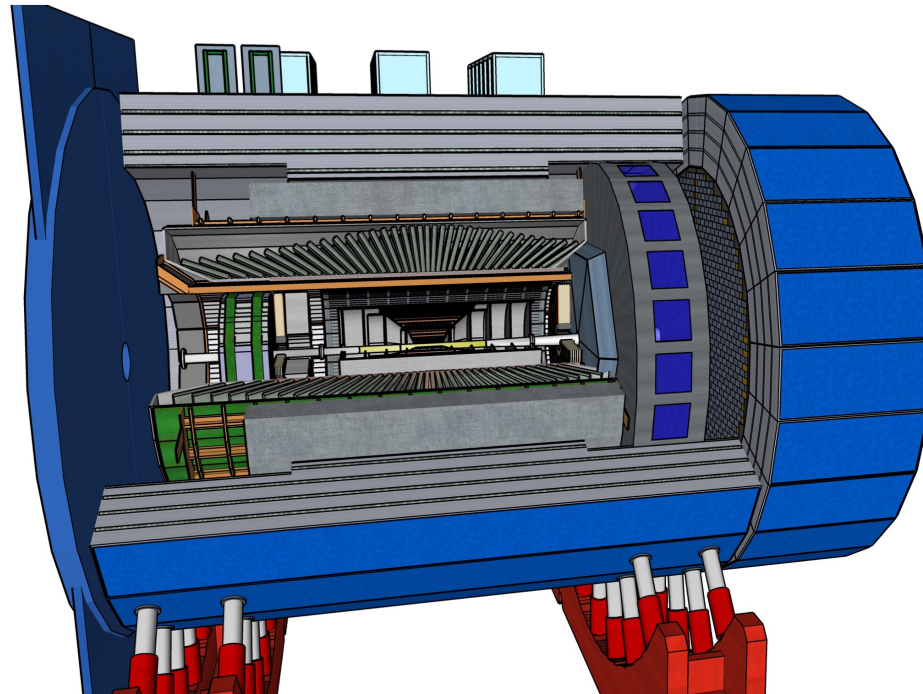
Or Hen


What's €CCCE€?

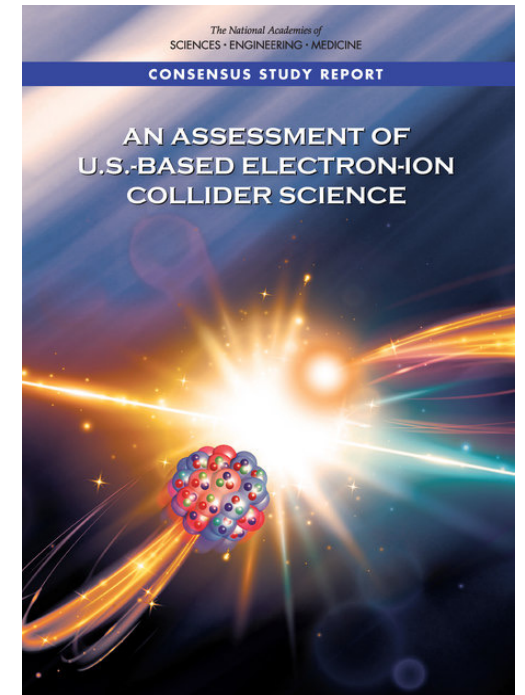
Scientists from
96 institutions



Designing (& building!)
a detector

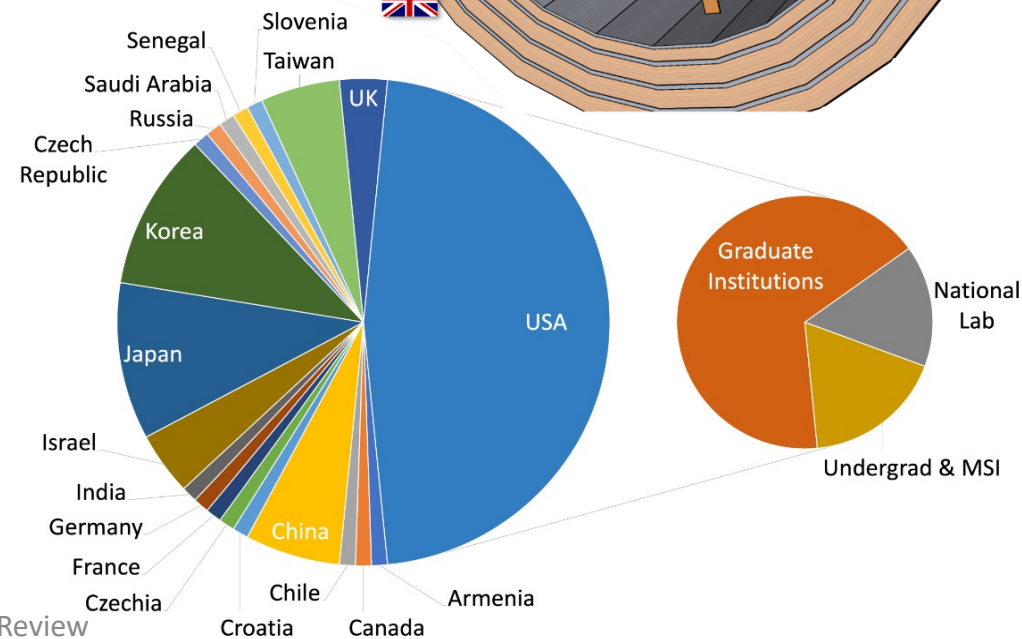
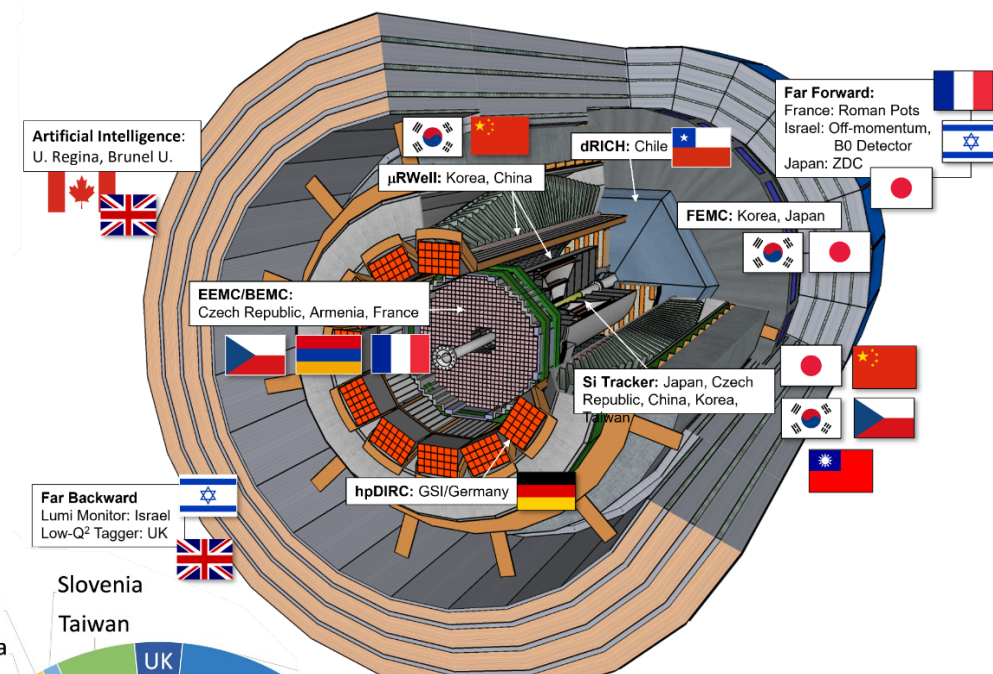


To deliver on EIC
science mission



ECCE Consortium

- Strong international engagement and broad experience with large-scale ME & HI projects
- Strong connection to the Yellow-Report (YR):
 - ECCE members at all levels led and performed a broad range of YR studies,
 - YR physics & detector co-conveners and sub-group co-conveners hold leadership positions in ECCE.
- Strong leadership by younger researchers
- Assembled as Consortium:
 - Focus on detector proposal,
 - Support DEI efforts via Code-of-conduct,
 - Allow for flexibility when forming collaboration following review outcome.



Our mission:

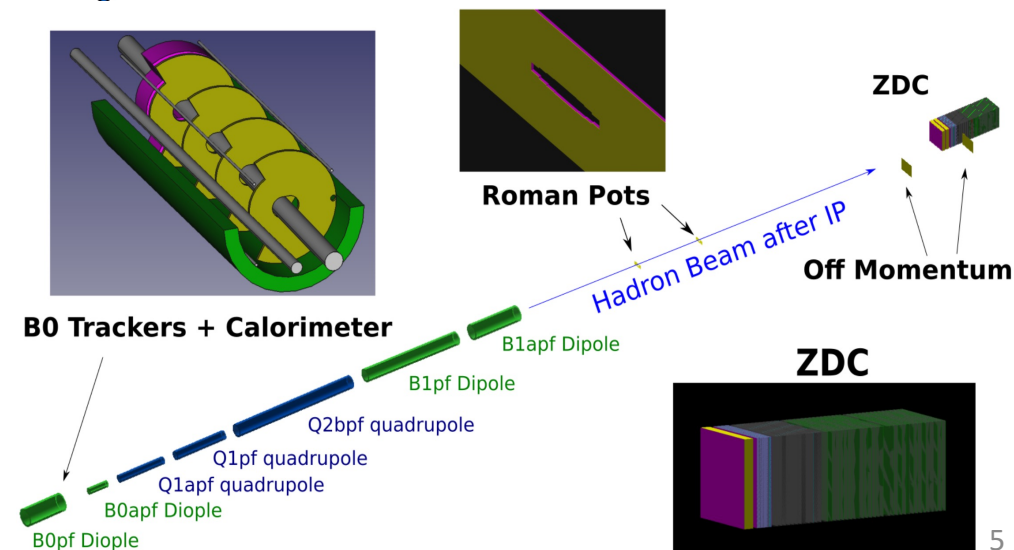
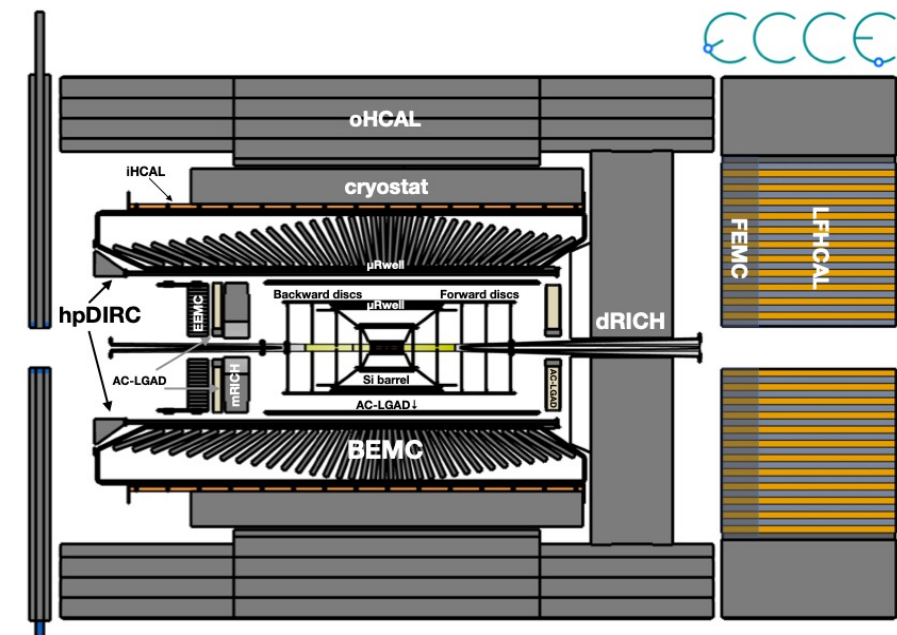
Produce a purpose-built detector, designed to optimally deliver the full EIC science program by carefully balancing technology choices, costs and risk

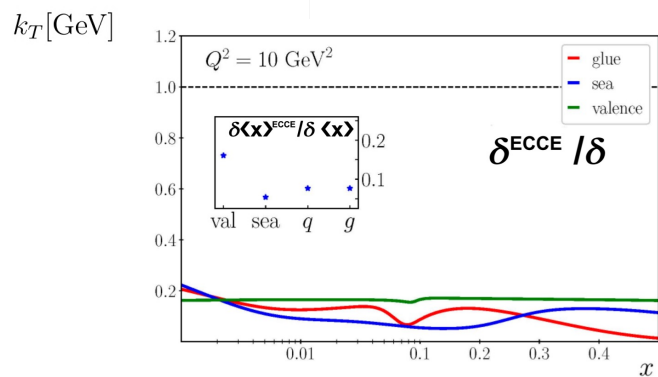
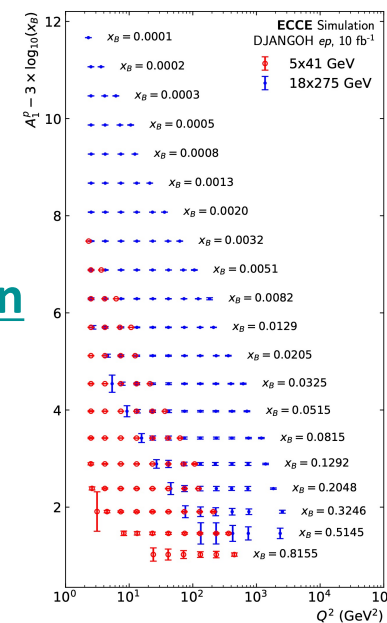
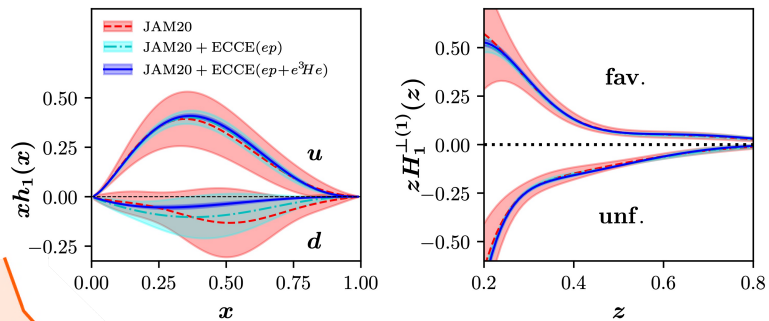
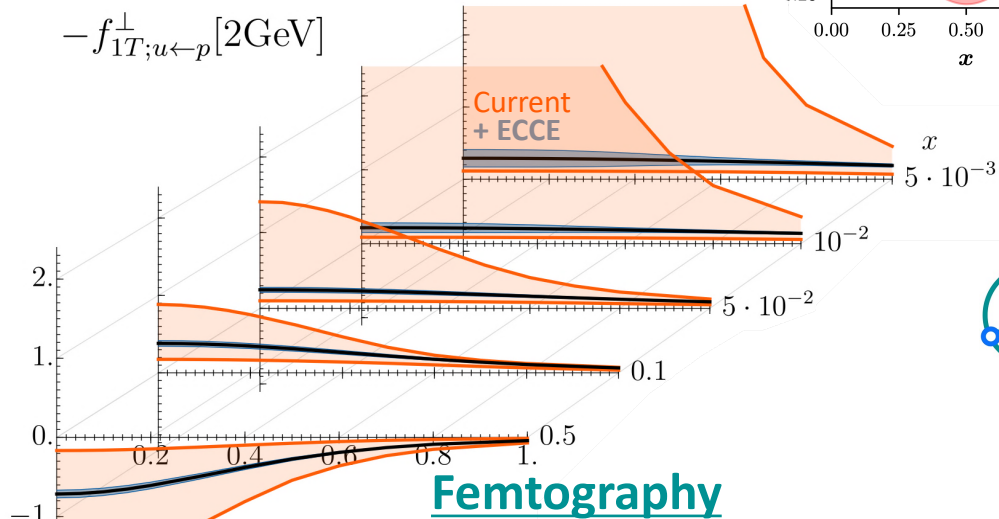
Working approach:

1. Physics driven detector design to deliver the full EIC science program;
2. Develop project plan to ensure readiness by EIC day one (early CD4A);
3. Select technology to minimize risk (where possible) & use funds effectively.

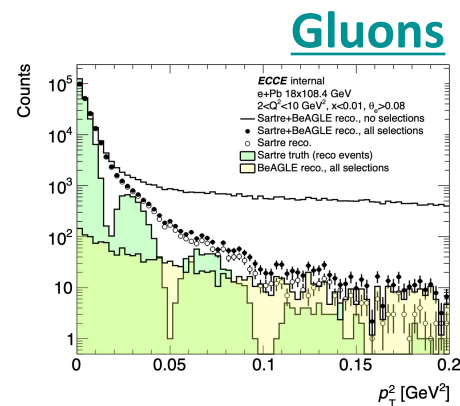
Physics Driven Design

- Integrated design for physics performance:
 - AI optimized tracking,
 - Excellent calorimetry (PbWO_4 ; SciGlass; ...),
 - Comprehensive PID (TOF + Cerenkov + Calo),
 - Reuse BaBar Magnet & sPHENIX HCal,
 - Optimized far-forward / back detectors.
- Established physics reach with Geant4 simulations
- Low-risk design to ensure on-time on-budget project completion:
 - Use advanced yet low-risk technologies,
 - Minimize number of technologies,
 - Magnet design contingency.

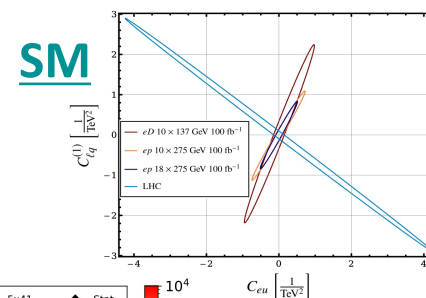
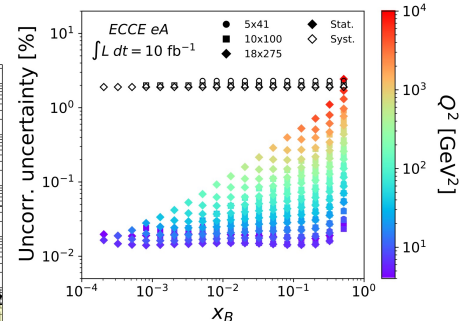




Mass



Gluons



See Talk by C. Muñoz Camacho

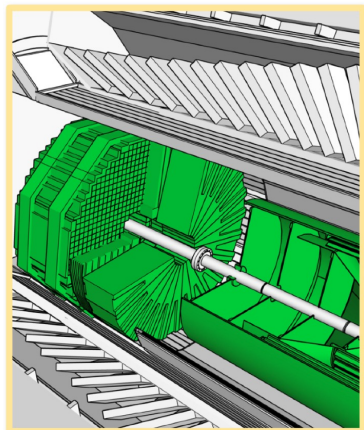




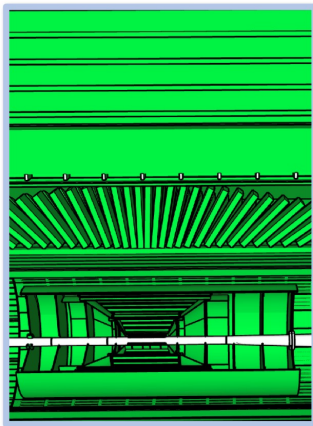
Physics Driven Detector Design

ECCE Detector

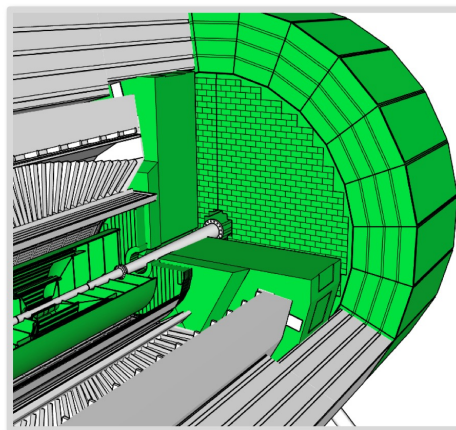
Central



Backward Endcap

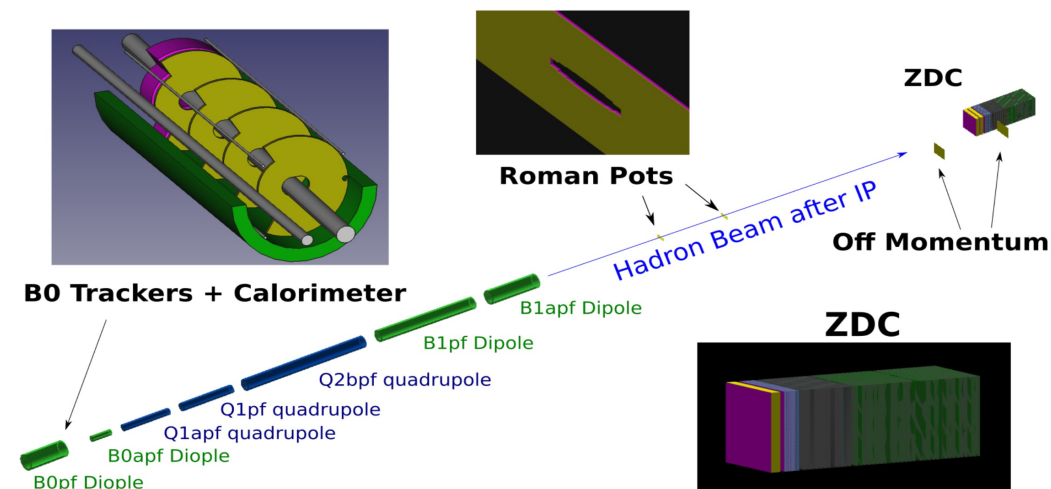


Barrel

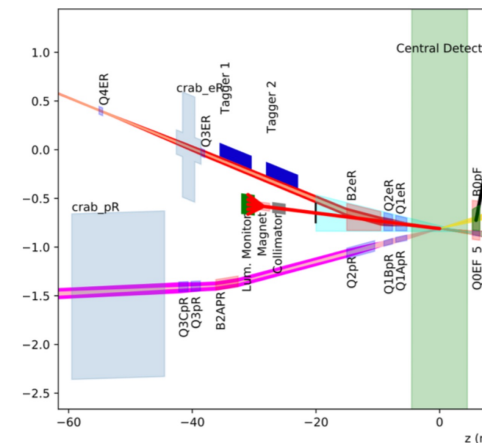
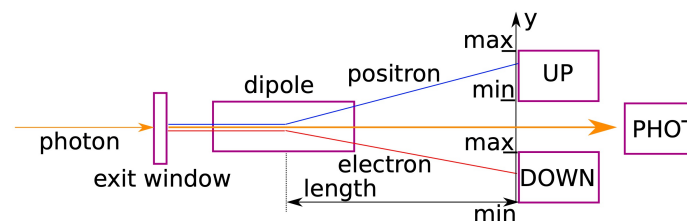


Forward Endcap

Far-Forward



Far-Backward



See Talk by
T. Horn

Presentations

Dec. 13th

✓ Introduction	(O. Hen, '7)
ECCE Physics Performance	(C. Muñoz Camacho, '20)
ECCE Detector	(T. Horn, '20)
DAQ, Electronics, and Computing	(D. Lawrence, '10)
Summary	(J. Lajoie, '3)
Discussion	(Panel, '30)

Dec. 14th

Introduction	(O. Hen, '5)
Collaboration	(O. Hen, '15)
Project: Cost, schedule, and risk	(J. Lajoie, '20)
Detector: Risk, R&D, Upgrades	(T. Horn, '15)
Summary	(T. Horn, '5)
Discussion	(Panel, '30)



- General purpose EIC detector,
- Proven ability to deliver on EIC science mission (Geant4-based),
- Detailed and realistic project plan; Path for producing on-time on-budget detector (for early CD4A).
- Upgrade paths to enhance performance when scientifically required.