



ECCE 4th IB Meeting

On behalf of the ECCE Steering Committee

Or Hen, Tanja Horn, John Lajoie

It's Been a Busy Two Weeks!



PublicUS/EasternJ. Lajoie

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ECCE

May 2021

0 long-lasting events not shownToday<>

Mon	Tue	Wed	Thu	Fri	Sat	Sun
26 09:30 ECCE PWG Convener Meeting 16:00 3rd ECCE Institutional Board Meeting 20:00 Simulation Office Hours 21:00 ECCE PWG Convener Meeting	27	28 07:30 EEMC fun4all kickoff meeting 14:00 BNL Special Seminar	29	30 10:00 Exclusive Reactions Group Meeting	1	2
3 09:30 ECCE Physics Meeting 11:00 ECCE Test PID Working Group Meeting 12:00 ECCE Team Convenor Meeting 21:00 ECCE Physics Meeting	4 09:00 Calorimetry Working Group Meeting 10:00 SDCC-ECCE Meeting 11:00 ECCE Jets and HF Meeting 14:00 Simulation Office Hours 15:00 ECCE Tracking Working Group Meeting	5 12:00 ECCE Diffractive and Tagging Kickoff Meeting 14:00 ECCE-BNL kickoff meeting	6	7 10:00 Exclusive Reactions Working Group Meeting 11:00 ECCE Tracking Working Group Meeting	8	9
10 05:00 4th ECCE Institutional Board Meeting 09:30 ECCE Physics Meeting 12:00 ECCE Team Convenor Meeting 20:00 Simulation Office Hours 21:00 ECCE Physics Meeting	11 15:00 ECCE Tracking Working Group Meeting	12	13	14	15	16
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24 08:00 5th ECCE Institutional Board Meeting 09:30 ECCE Physics Meeting 12:00 ECCE Team Convenor Meeting 20:00 Simulation Office Hours 21:00 ECCE Physics Meeting	25 15:00 ECCE Tracking Working Group Meeting	26	27	28	29	30
31 09:30 ECCE Physics Meeting 12:00 ECCE Team Convenor Meeting 21:00 ECCE Physics Meeting	1 14:00 Simulation Office Hours	2	3	4 10:00 ECCE Tracking Working Group Meeting	5	6

<https://indico.bnl.gov/category/339/calendar>

5/10/2021

Agenda

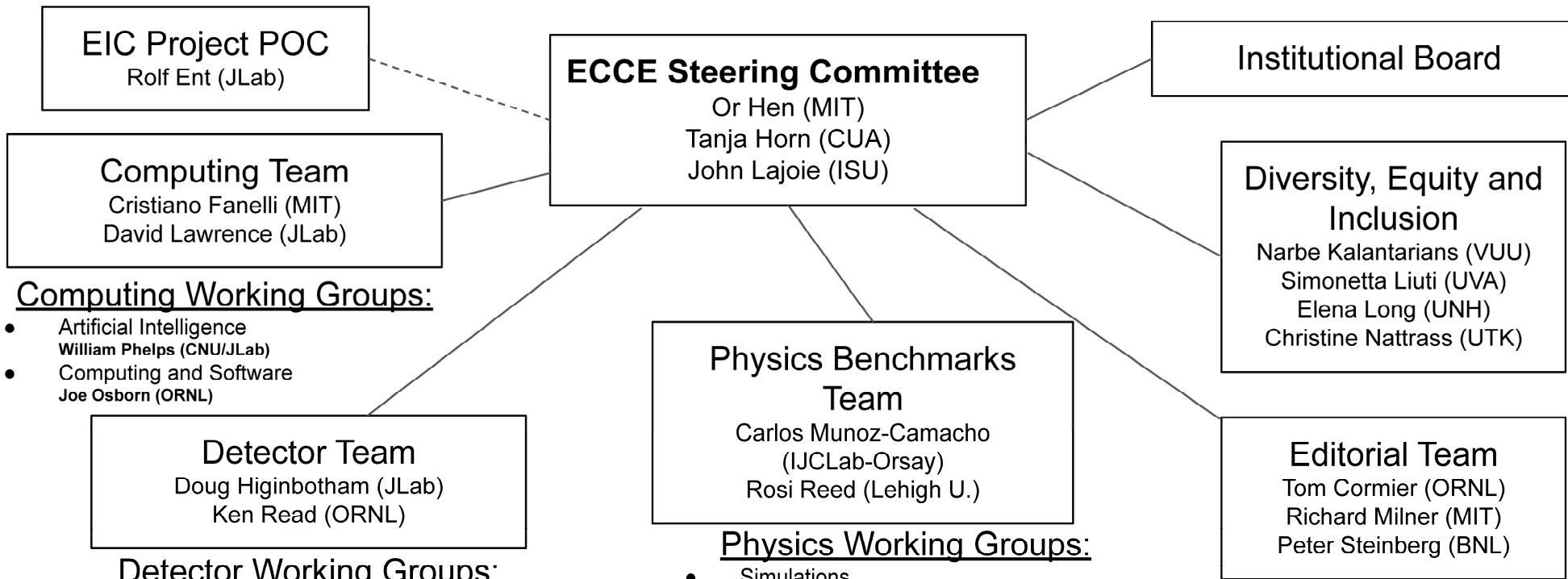
Looking forward to reports from the teams and working groups – lots of things happening!

5/10/2021

4th ECCE Institutional Board Meeting			
Monday May 10, 2021, 5:00 AM → 10:20 AM US/Eastern			
Description Connection Information:			
Please click this URL to start or join. https://iastate.zoom.us/j/95629063924?pwd=ZCtLeDRsODdRaEp2K2NraXhJRTZGQT09 Or, go to https://iastate.zoom.us/join and enter meeting ID: 956 2906 3924 and password: 445213			
5:00 AM → 5:30 AM	ECCE News and Status	30m	
5:30 AM → 5:45 AM	Discussion	15m	
5:45 AM → 6:00 AM	Diversity, Equity and Inclusion		
	5:45 AM DE&I Report Speakers: Christine Nattrass (University of Tennessee, Knoxville) , Elena Long (University of New Hampshire) , Marie BOER, simonetta liuti (university of virginia)	15m	
6:00 AM → 6:15 AM	Computing Team		
	6:00 AM Computing Team Report Speakers: Cristiano Fanelli (MIT) , David Lawrence (Jefferson Lab)	15m	
6:15 AM → 6:45 AM	Detector Team		
	6:15 AM Detector Team Report ¶ Speakers: Douglas Higinbotham (Jefferson Lab) , Kenneth Read (Oak Ridge National Laboratory)	10m	
	6:25 AM Calorimetry DWG Report Speakers: Friederike Bock (ORNL) , Yongsun Kim (UIUC)	5m	
	6:30 AM Discussion	15m	
6:45 AM → 7:15 AM	Physics Benchmark Team		
	6:45 AM Physics Benchmark Team Report Speakers: Carlos Munoz Camacho (IJCLab-Orsay (France)) , Rosi Reed (Lehigh University)	15m	
	7:00 AM Discussion	15m	
7:15 AM → 7:30 AM	Editorial Team		
	7:15 AM Editorial Team Report Speakers: Peter Steinberg (BNL) , Richard Milner (MIT) , Tom Cormier (ORNL)	15m	
7:30 AM → 8:00 AM	Further Discussion	30m	

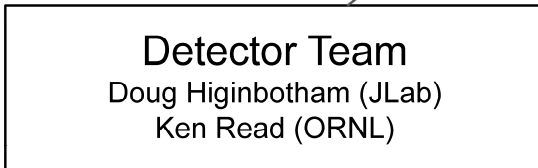


ECCE Consortium



Computing Working Groups:

- Artificial Intelligence
William Phelps (CNU/JLab)
- Computing and Software
Joe Osborn (ORNL)



Detector Working Groups:

- | | |
|---|--|
| <ul style="list-style-type: none"> • IP8/Equipment Re-use
John Haggerty (BNL) • Far Forward/Far Backward*
Michael Murray (KU) • Tracking
Xuan Li (LANL),
Nilanga Liyanage (UVA) • Calorimetry
Friederike Bock (ORNL), Yongsun Kim (Sejong U.) | <ul style="list-style-type: none"> • Particle ID
Greg Kalicy (CUA),
Xiaochun He (GSU) • Magnetic Field
Paul Brindza (JLab),
Renuka Rajput-Ghoshal (JLab) • DAQ/Electronics/Readout
Chris Cuevas (JLab),
Martin Purschke (BNL) |
|---|--|

*Alex Jentsch, Yulia Furlotova
(far-forward/backward POC)

Physics Working Groups:

- Simulations
Cameron Dean (LANL), Jin Huang (BNL)
- Inclusive Processes
- Semi-Inclusive
Ralf Seidl (RIKEN), Charlotte Van Hulse (Orsay)
- Exclusive
Rachel Montgomery (Glasgow), Julie Roche (OU)
- Diffractive and Tagging
Wenliang Li (W&M), Axel Schmidt (GWU)
- Jets and Heavy Flavor
Cheuk-Ping Wong (LANL)
- BSM and Precision Electroweak
Sonny Mantry (UNG), Xiaochao Zheng (UVa)

Editorial Working Groups:

- Proposal Editing, Verification and Version Control
- Costing and Management

Website:

<https://www.ecce-eic.org/>

Mailing Lists:

<https://lists.bnl.gov>

- ecce-eic-public-l
- ecce-eic-ib-l
- ecce-eic-dei-l
- ecce-eic-det-l
- ecce-eic-phys-l
- ecce-eic-prop-l

Indico:

<https://indico.bnl.gov/category/339/>

Welcome New ECCE Institutions

- Added 6 institutions since last IB meeting – now 70 strong!
- Brunel University (Liliana Teodorescu)
- CIAE (Xiaomei Li)
- Duquesne U. (Fatiha Benmokhtar)
- Hampton U. (Eric Christy)
- U. Ljubljana/Slovenia (Simon Sirca)
- William and Mary (Justin Stevens)



EIC@IP6 Convenors

- From 3rd IB Meeting:

We, like others, are disappointed that EIC@IP6 added an exclusivity clause to their convener invitations, preventing them from collaborating with other efforts. We think its counter productive to our goals as a community and expressed this view to the project, EIC@IP6, and EICUG steering committee leadership.

- Discussions with Barbara Jacak, Bernd Surrow

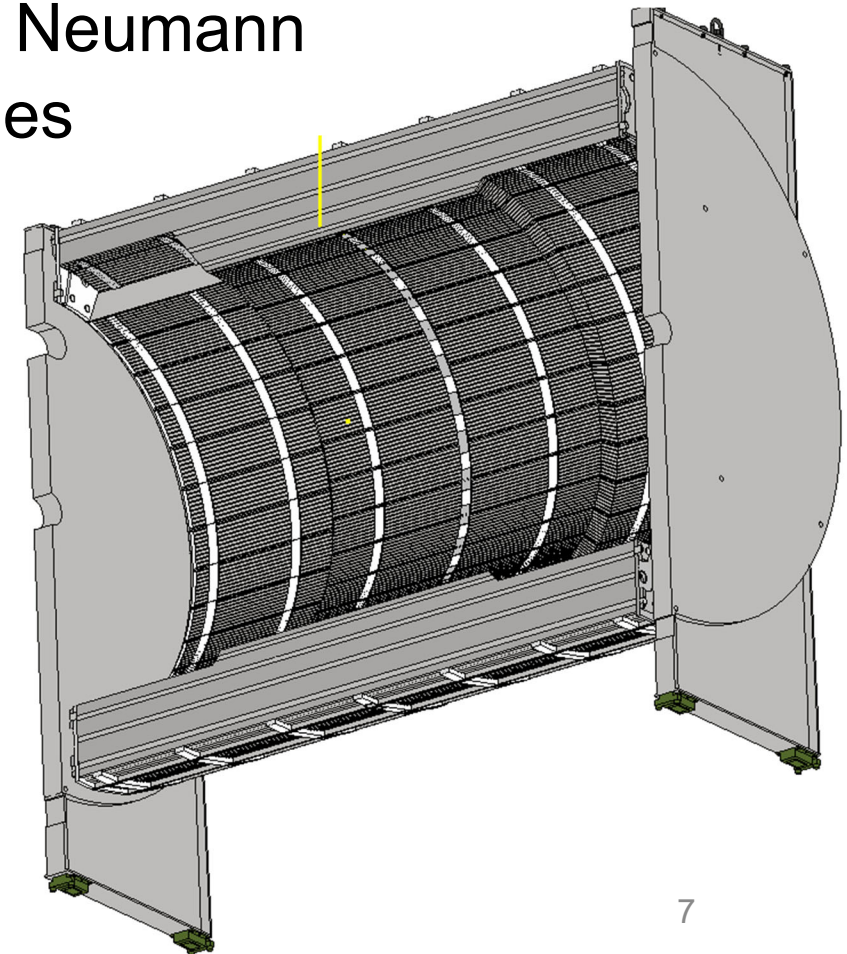
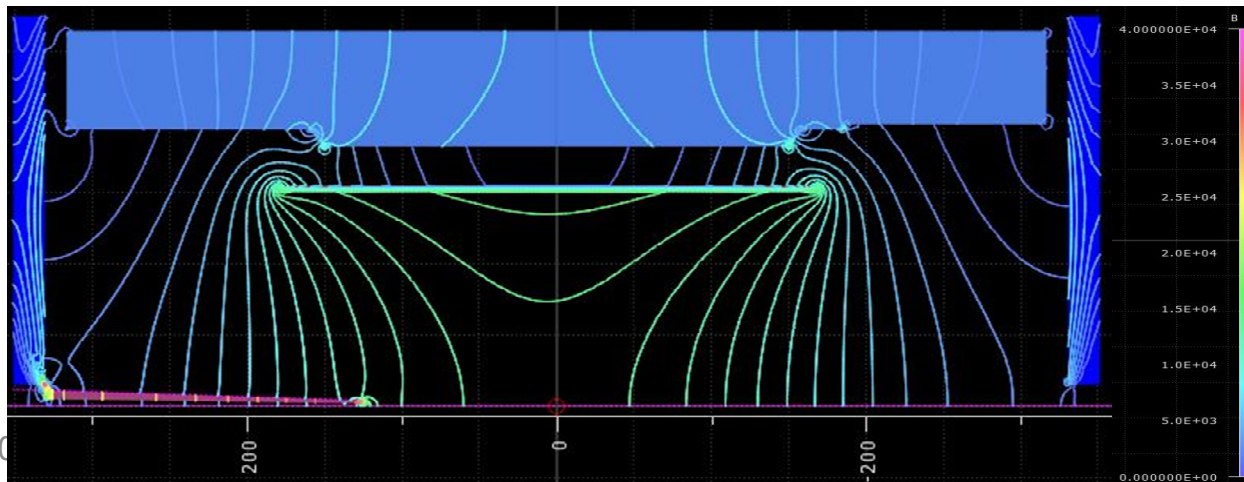
- Clarified that this was only meant to preclude someone as serving as a convener on EIC@IP6 and another proposal

□ We strongly value the input and support from anybody from the EIC community - Participation on EIC@IP6 in general is open to anybody!

EIC@IP6 Bi-Weekly Meeting
April 29, 2021

ECCE Magnetic Field Design

- Work ongoing by Paul Brindza (JLab)
 - Assistance from Russ Feder (sPHENIX engineer) w/flux return model
 - Measured 1020 steel B(H) curve also made available
 - Additional support from ISU (2D Opera) by Josh Neumann
 - Work to develop simpler model for shaping studies
- 2D Opera model reproduces central field from sPHENIX calculations
 - Tests using HIPERCO 50 field shaping piston



Getting Organized (I)

- The flurry of meetings last week was stunning!
- Need to *prioritize* and *coordinate* ongoing activity:

DWG's:

- Technology Selection
- Baseline Design
- Alternate Configuration(s)

PWG's:

- Physics Signal Selection
- Physics Performance Evaluation

CWG's:

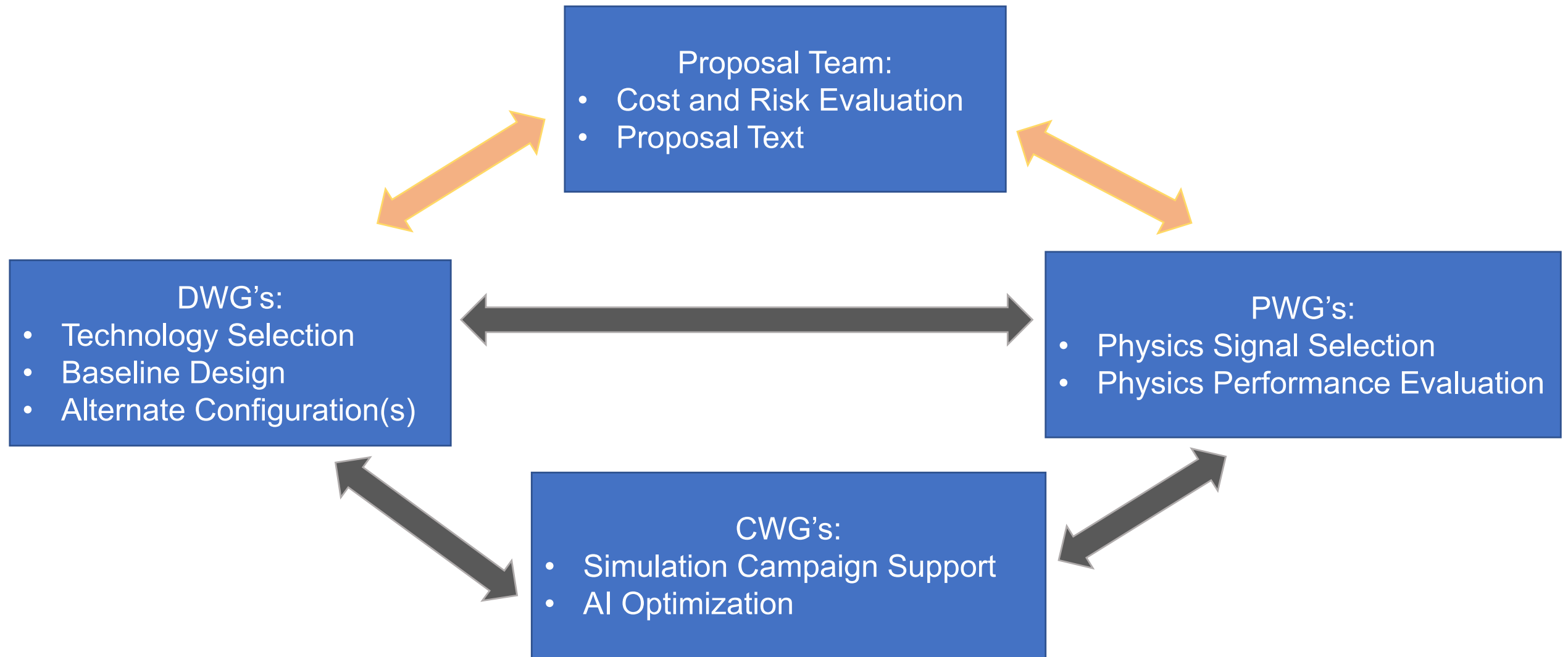
- Simulation Campaign Support
- AI Optimization

Getting Organized (II)

- The flurry of meetings last week was stunning!
- Need to *prioritize* and *coordinate* ongoing activity:



Getting Organized (III)



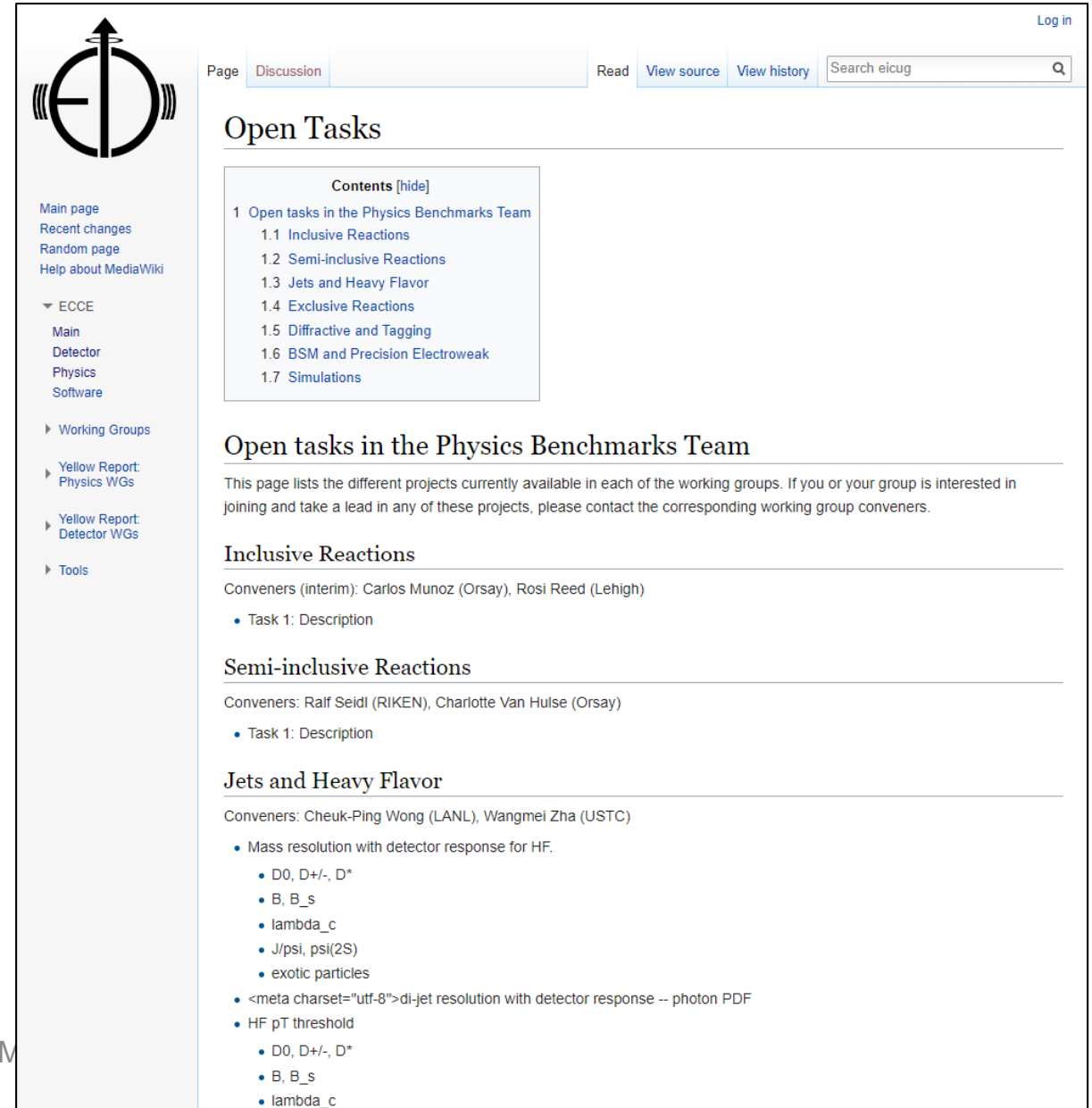
Wiki and Open Task Lists

- WG's asked to maintain a list of open tasks in the ECCE Wiki:

<https://wiki.bnl.gov/eicug/index.php/ECCE>

- This is the place to start when looking to get postdocs/students started in ECCE

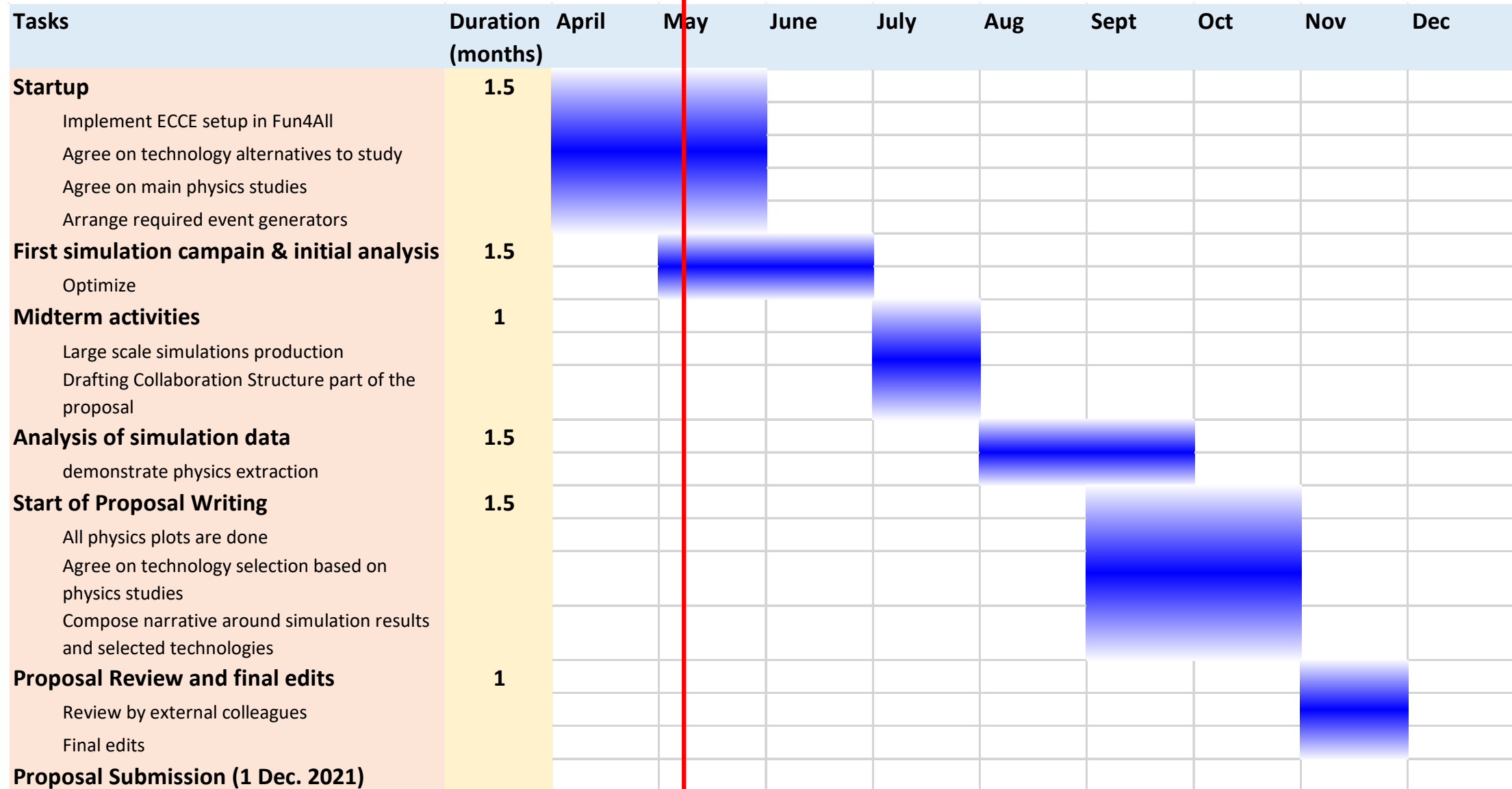
- WG's will keep lists updated as new opportunities arise



The screenshot shows the ECCE Wiki page for 'Open Tasks'. The page is part of the 'ECCE' namespace and is titled 'Open Tasks'. It features a sidebar with navigation links such as 'Main page', 'Recent changes', 'Random page', and 'Help about MediaWiki'. The main content area is divided into sections for 'Open tasks in the Physics Benchmarks Team', 'Inclusive Reactions', 'Semi-inclusive Reactions', and 'Jets and Heavy Flavor'. Each section lists specific tasks and their conveners. The 'Open tasks in the Physics Benchmarks Team' section lists seven tasks: 1.1 Inclusive Reactions, 1.2 Semi-inclusive Reactions, 1.3 Jets and Heavy Flavor, 1.4 Exclusive Reactions, 1.5 Diffractive and Tagging, 1.6 BSM and Precision Electroweak, and 1.7 Simulations. The 'Inclusive Reactions' section lists the conveners (interim) as Carlos Munoz (Orsay) and Rosi Reed (Lehigh) and includes a task description. The 'Semi-inclusive Reactions' section lists the conveners as Ralf Seidl (RIKEN) and Charlotte Van Hulse (Orsay) and includes a task description. The 'Jets and Heavy Flavor' section lists the conveners as Cheuk-Ping Wong (LANL) and Wangmei Zha (USTC) and includes a list of tasks: Mass resolution with detector response for HF, HF pT threshold, and D0, D+/-, D*.

Timeline

Today, May 10



Today

Today

- Today

[illegible]

May 6th Meeting

- Proto-collab. representatives ++, EIC PM and EICUG SC
- Presentation of material to support costing:
 - <https://indico.bnl.gov/event/10974/contributions/>
 - Costing template (Excel file) – “P6 lite”
 - Organizes basis, resources, etc. in common categories and approach
 - To be costed in 2021\$, no contingency or overhead
 - Selection of quotations and inflation scaling to 2021\$ provided
 - Agreement to share additional quotations between collaborations
 - TRACE (Technical, Risk and Cost Evaluation) to be done by project after submission
 - Need to discuss this within ECCE – strategy?
- Discussion of draft charge to Proposal Advisory Panel
 - Discussion of wording and process, will go to DOE followed by another opportunity to comment.
- To become a regular bi-weekly meeting to discuss additional issues as we proceed through the proposal process.

May 6th Meeting (cont.)

Announced at JLab Meeting 5/7

- EICUG helping to coordinate ongoing computing efforts in support of proposals
- Structure recognizes what is already happening

Computing Coordination Group (CCG)

- Charge
 - ▶ Coordination of resources among EIC computing efforts
 - ▶ Keep record of required and available resources as well as their usage
 - ▶ Access point for institutions that intend to contribute computing resources
- Membership
 - ▶ Contact persons/liaisons for EIC computing resources from labs (2)
 - [Jerome Lauret](#) (BNL) and [Graham Heyes](#) (JLab)
 - ▶ Representatives of computing groups of the 3 proto-collaborations, 2 each (6)
 - CORE, ECCE and EIC@IP6
 - ▶ Liaison to EICUG Software Working Group (1)
 - [Andrea Bressan](#)? (Other two conveners are within labs)
- Timeline
 - ▶ Regular meetings of CCG this year to accompany proposal process
 - ▶ Structure and responsibilities to be revisited after proposal decisions in Q1 2022

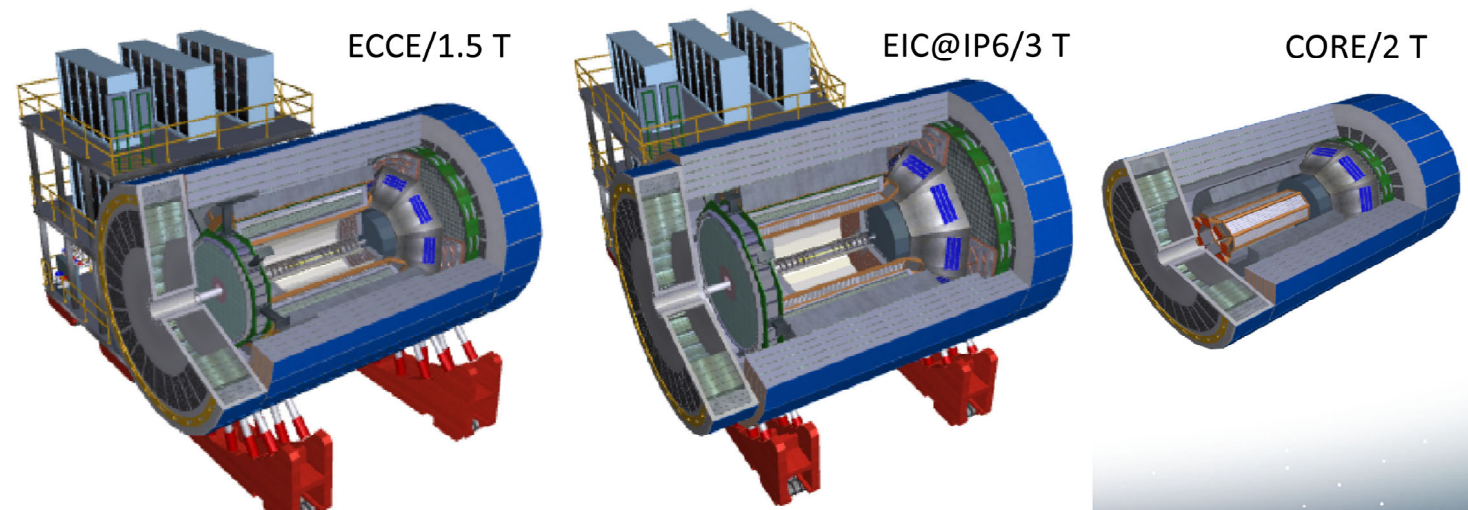
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Detector Visualization

- 3D Visualization using Sketchup led by Rolf Ent.
- Useful for help in integration, detector overlaps, frames, etc.
- Expect a meeting later this week.

3D/Visualization Detector Integration Model

- Have developed a plug and play model for detector integration towards the engineering concept for the full detector using Sketchup.
- This may help you both in your proposal work for actual detector sizes and to engage in-kind engineering and design work for sub-detectors.
- You will get these plug and play models as 3D viewable adobe pdf file.
- Some contact persons or conveners may consider to purchase a Sketchup license: <https://www.sketchup.com/plans-and-pricing#for-professional>



We expect to be ready to meet with you next week to show how to use it – please advise if first as group with contacts or separate for each proto-collaboration which may be more instructive.

Polarimetry Working Group

Suggestion to for overarching WG between project and proto-collaborations to cover polarimetry and luminosity detectors.

Instrumentation tightly integrated to collider layout and necessary for both accelerator and detector.

Efforts already have project CAMs.

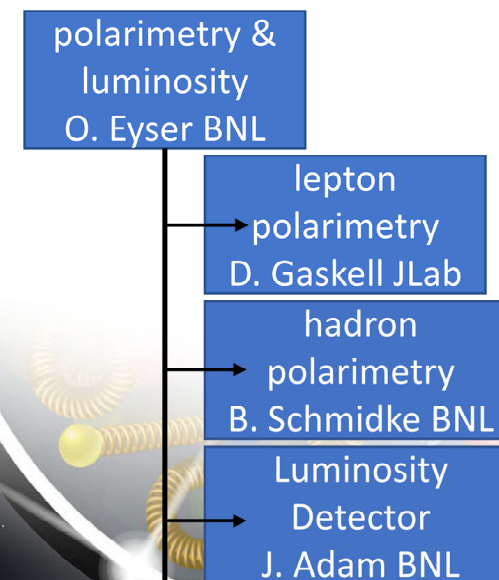
Polarimetry and Luminosity Detector

- ❑ One set of hadron polarimeters (H-jet and pC) for EIC
- ❑ one lepton polarimeter per IR
- ❑ one luminosity detector per IR
- ❑ one local hadron polarimeter per IR

→ all of this equipment is essential for the performance of the collider & the experiment and is tightly integrated into accelerator layout

→ these efforts are coordinated by the EIC project → CAMs

→ collaboration members are very welcome / urged to collaborate



EIC-UG WG on Polarimetry and Luminosity

Current Conveners: Dave Gaskell & E.C. Aschenauer

→ meetings every 1st Wednesday of the month @ 3:00pm

→ <https://indico.bnl.gov/category/280/>

Proposed (Optimal) Working Solution:

form consortia / overarching WG for these three areas between EIC Project (accelerator + experiment) and the Proto-Collaborations, to provide information on who wants to contribute and what in-kind can be expected.

IR2 Design Status

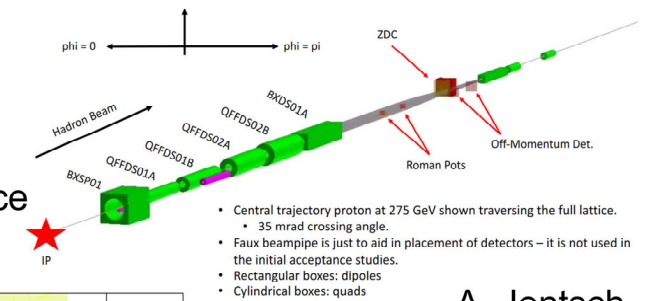
- Presentation of latest design by Vasily Morozov:

- JLab Friday meeting 4/30
- Integrated into EIC layout
- Magnet parameters re-optimized for ± 7 mrad Roman pot acceptance with aperture-edge fields of < 4.6 T
- Crossing angle is 35 mrad
- Forward detector space 5 m
- IP shifted toward the ring center by 85 cm

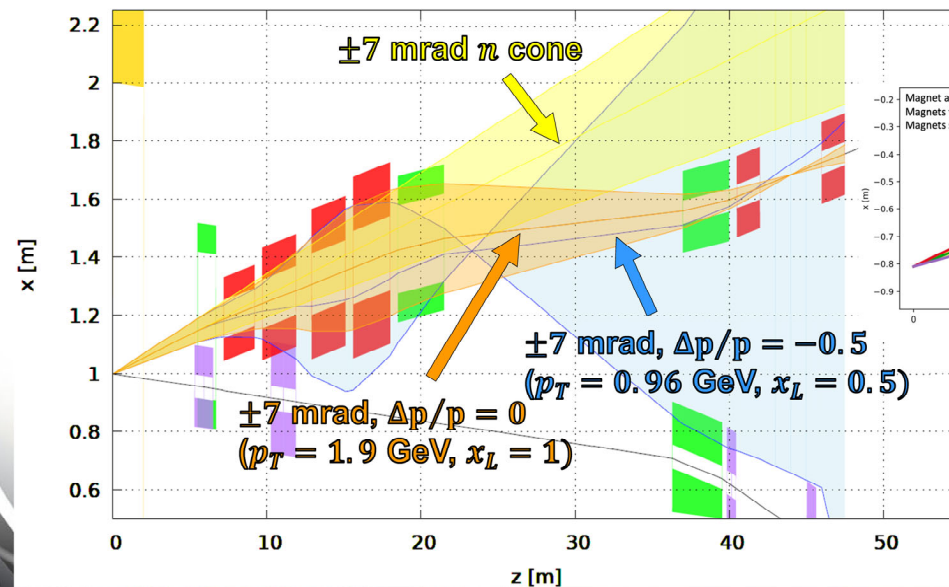
- Working on acceptance issues for neutrons and off-momentum protons
- Fold in secondary focus
- Goal is to provide working design to EICUG and collaborations for simulation by end of May

2nd IR Modeling Under Way

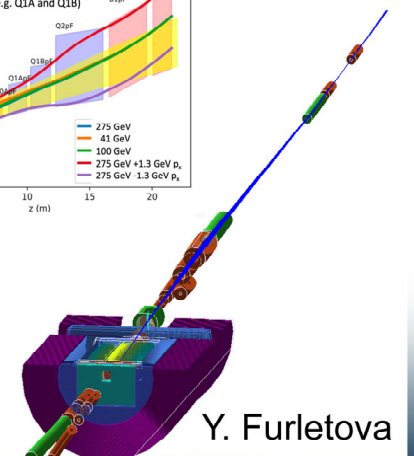
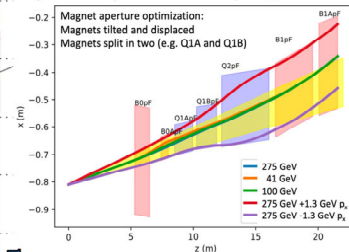
- Current focus on acceptance optimization
- Initial design: magnets centered on beam
 - Optimal for high- p_T at $x_L = 1$ but not for n
- Move magnets around to optimize acceptance to both using IR6 design as guidance



A. Jentsch



IR6 design



Y. Furletova

Electron-Ion Collider

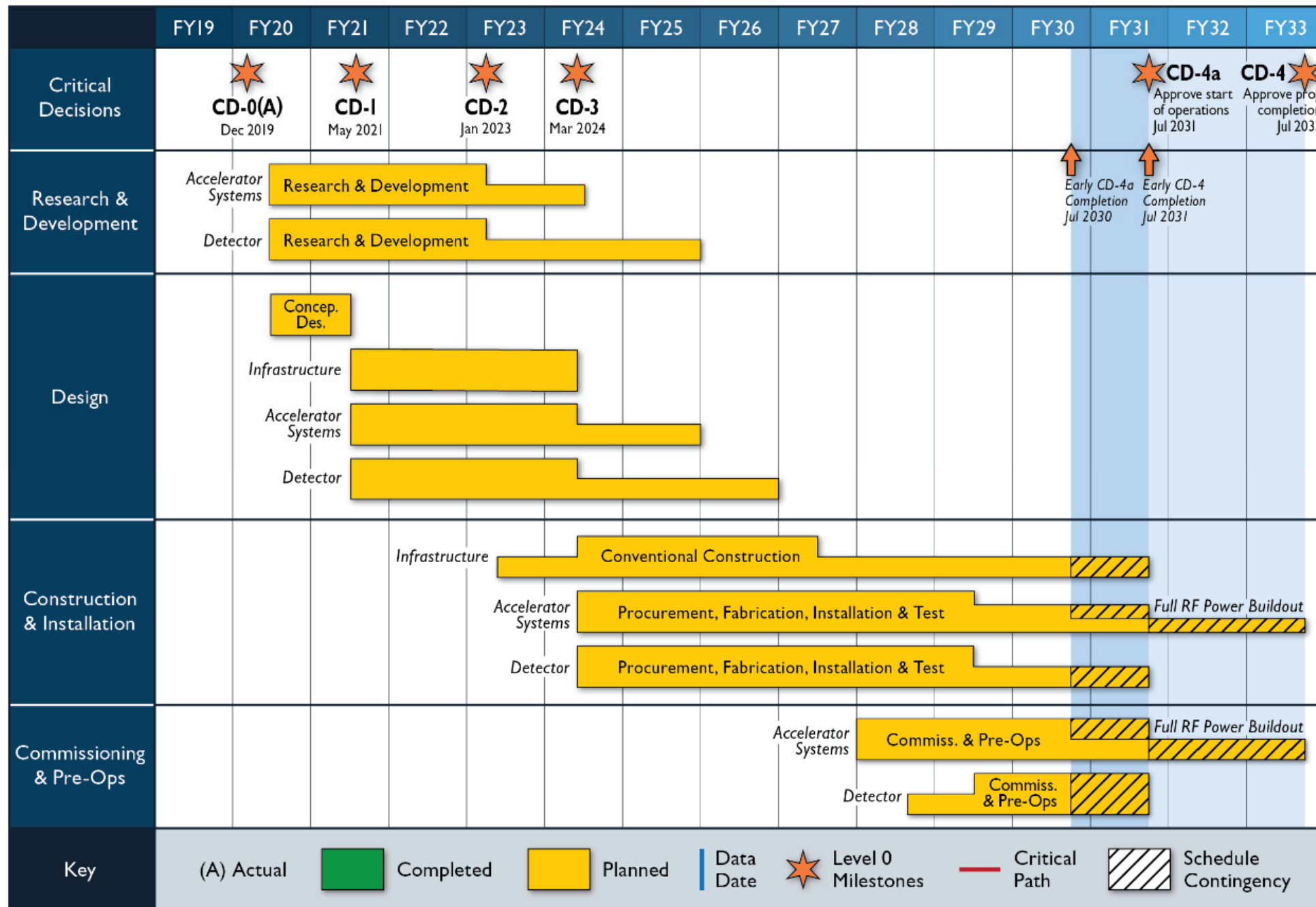
Strategy for the Proposal

- ECCE overall goal is to balance physics performance and cost.
- There are many ingredients and considerations:
 - Physics performance
 - Cost, Risk (Technical and Schedule)
 - Is ECCE an inexpensive detector?
 - Does ECCE aim at a fixed cost and use savings to invest in detectors?
 - Consortium membership, in-kind contributions?
 - Upgrade path?
 - Integration with collider commissioning?
- Complicating factors:
 - IP6 or IP8?
- Need your feedback – intend to have an ongoing discussion

ECCE Resources

- ECCE Website
 - <https://www.ecce-eic.org/>
- ECCE Indico
 - <https://indico.bnl.gov/category/339/>
- ECCE Indico Calendar
 - <https://indico.bnl.gov/category/339/calendar>
- ECCE Wiki
 - <https://wiki.bnl.gov/eicug/index.php/ECCE>

BACKUP



From Jim Yeck
3/30/21