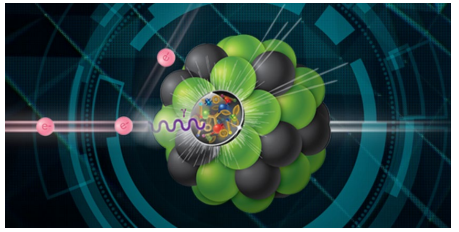


EIC Detector-1

WG Convener MEETING
20 May 2022

Silvia dalla Torre, Or Hen, Tanja Horn, John Lajoie, Bernd Surrow

A few updates: global geometry database

to provide consistency of detector envelopes between:

(From discussion with EIC PM on 17 May 2022)

- **Sketchup**: Integration and assembly, installation, and maintenance.
- **CAD**: Detailed engineering information for construction.
- **Simulation**: Physics and detector studies using detailed GEANT-based detector simulations.
- **Analysis:** Reconstruction in simulation and physics analysis

- **Gatekeeper**: Tanja Horn (for Detecfor-1 contacts; can work together with system engineer Walt Akers for global changes and improvements)
  - Keep some info on changes and why

Geometry Database – https://physdiv.jlab.org/EIC/Menagerie/

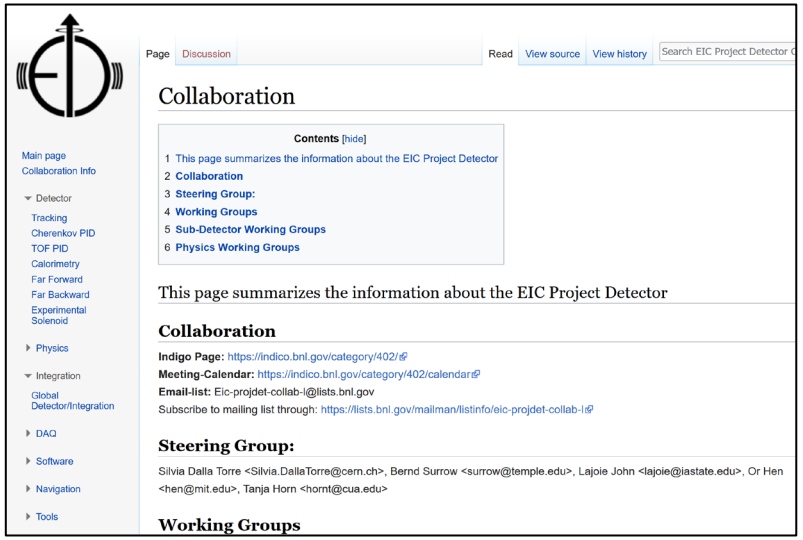
- **Legs of input:**
  - Global Detector/Integration Group:
    - Collects all information from working groups
    - Balances detector technology needs versus each other
  - Detector-1 Sim/QA Working Group:
    - Collects all trade-offs of material budget versus science performance
    - Implements version control for simulations
  - EIC Project Detector Leads:
    - Collect input from E&D process (Space needs for frames and supports, Space needs for service/cooling, Requirements of accelerator and vacuum integration)
    - Fold keep-in volumes into requirements/interface control document

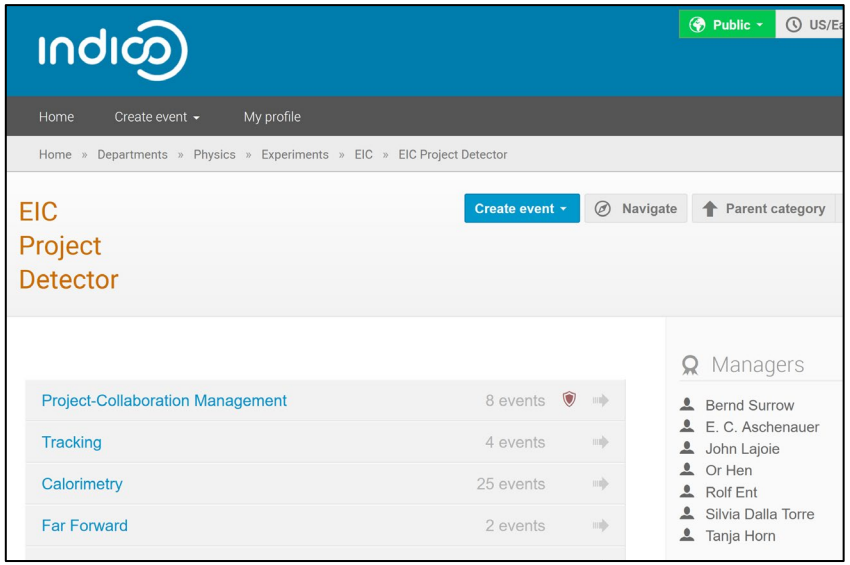
A few updates: organization

(for information, not specific to WG only)

https://wiki.bnl.gov/eic-project-detector/index.php/Collaboration

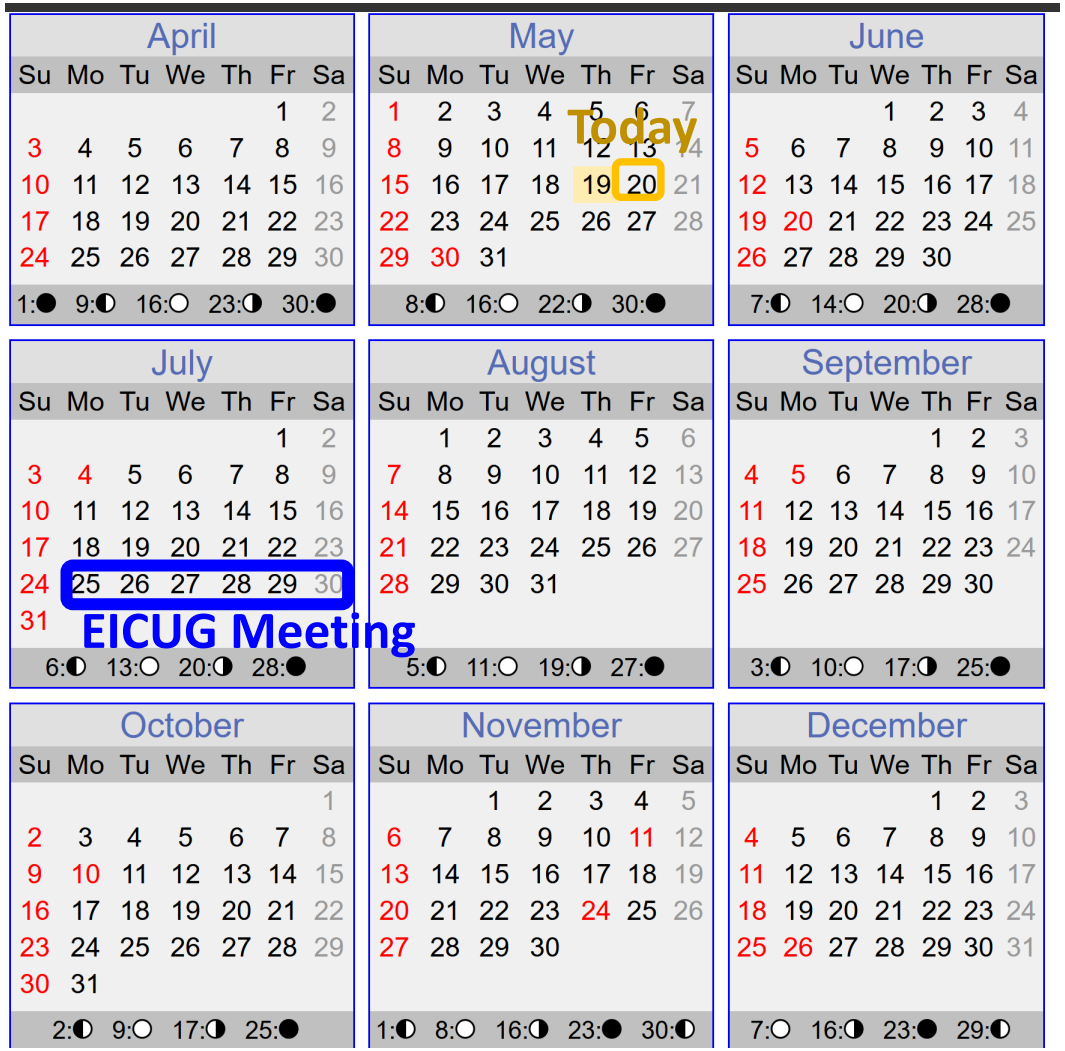
- Gap analysis for Advanced Conceptual Design Process
  - Meetings with Consortia ongoing including discussion about relation to the WGs
  - Institutional survey ongoing - https://forms.gle/FMMgEcaux9MY9noC8
- Computing Coordination Group being formalized by the EIC Project – Detector-1 WG representation included
- Collaborative tools
  - List of WG conveners – now in the Wiki
  - WG Convener mailing lists, e.g., eic-projdet-simqa-l-**owner**@lists.bnl.gov or WGs conveners can setup their own internal mail lists as needed
  - Detector-1 Indico: https://indico.bnl.gov/category/402/
  - Chat and Detector-1 web page are coming





A few updates: timeline

- ❑ Global charges were communicated to the WGs in April
- ❑ Timeline for the charges to the WGs (from 10 May, 2022 discussion with EIC PM)
  - The goal emphasized by the EIC PM is to confirm the reference "*advanced conceptual design*" by the July EICUG meeting (~9 weeks from now)
  - There may still be open issues on important items, but the goal should be to converge by the end of July and raise early on if any issues come up and/or more time is needed



Note: after addressing the main and most urgent questions, the optimization work will continue towards the pre-TDR

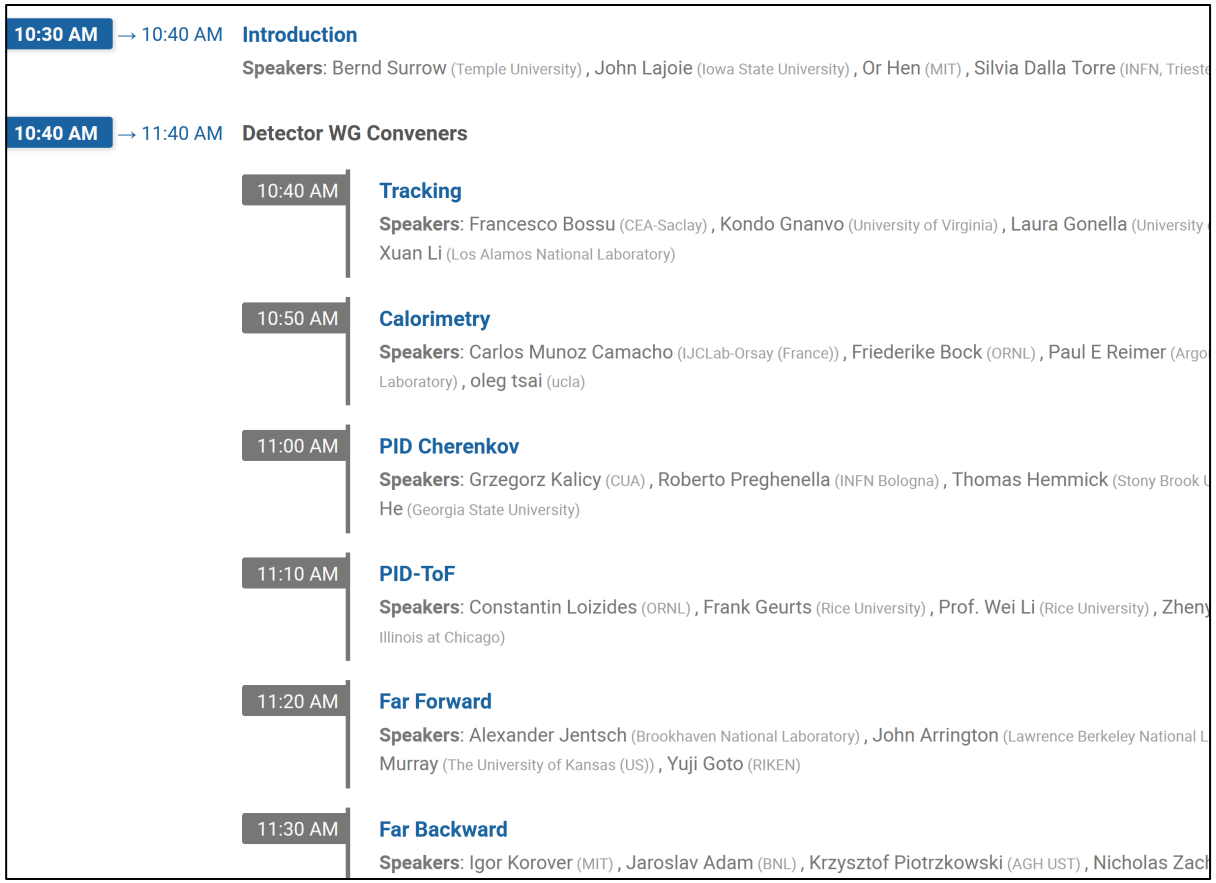
Agenda for today

Note: WG Convener meeting time is Fridays 10:30am ET

- ❑ Kickoff meetings phase completed
- ❑ Next step: addressing the charge we sent to you when WGs were formed:

  Discuss and propose specific charge elements for your WG. The SC group will discuss these with you before finalizing the specific WG charge.

- ❑ Today: Detector, Simulation/QA, and GD/I WGs.
  - We will ask for the Physics WG's to address this charge specifically at the next WG Convener meeting



WG Convener meeting organization rotation among: Tanja, Silvia, John, Bernd, Or

Global charge given to the Detector WGs

- The overall goal of the detector WG's is to optimize the ECCE reference design towards a technical design within the constraints listed above. In working towards this goal, the DWG's should collaborate with existing detector consortia (EICSC, EEEMCAL, MPGD, DIRC, DRICH, AC-LGADs, etc.), all detector R&D efforts relevant for Detector-1, and any additional efforts within the EIC scientific community.
- All working groups will work closely with the Global detector / integration working group and the EIC project towards a technical design that optimizes the global detector performance, taking into account global integration and physics performance.
- Each joint WG should hold at least one kickoff meeting where the designs of each proposal are presented in detail. It is critically important that WG members understand the scientific and technical reasoning behind different design choices before engaging in optimization discussions.
- The WG conveners will lead a discussion to identify any non-trivial differences and/or aspects in need of further optimization.
- For each non-trivial difference working groups will then work to prepare a pro/con list accounting for technical performance, risk and cost. The resolution of non-trivial differences should be discussed in close consultation with the Global detector/integration WG, physics working groups, the EIC project, relevant detector consortia and R&D efforts.

Global charge given to the GD/I WG

- Work with the project and the joint working group to develop a detailed, integrated technical design of the project detector. This includes the integration of various detector systems, the necessary supports and services, and the requirements imposed by the ability to service the detector between EIC running periods.
- Work with the detector and physics working groups, as well as project management, to ensure that the integrated project detector remains capable of the full science program outlined in the EIC Whitepaper and NAS report. Where compromises need to be made in the integration of the project detector, ensure that the proper simulations studies are completed to ensure they do not unduly compromise the EIC science program.

Charge given to the Computing/Software WG

- Both WGs must function with a great deal of cooperation!
- The Computing & Software WG should concentrate on longer-term issues surrounding the computing model, computing plan, and AI.
- The Simulations & QA working group is responsible for producing the simulations required to support the detector and physics working groups.
  - Both WGs function directly as a service WGs for the DWGs/PWGs.
  - Maintain the integrity of our simulation.
- Both WGs need to work together to address issues of software and analysis framework, both in the short- and long-term.