ePIC Collaboration News

J. Lajoie, S. Dalla Torre

February 22, 2024

Hey John, start the recording….

Today's Agenda

ePIC General Meeting

Thursday Feb 22, 2024, 7:30 PM → 9:20 PM US/Eastern

Description **Connection Information:** https://iastate.zoom.us/j/5671810336?pwd=Q1pwM2Q5NFk0T2xqMlJiWDcwcXlOdz09

Recording:

7:30 PM → 8:40 PM **General Status and Updates**

Conveners: John Lajoie (Oak Ridge National Laboratory), Silvia Dalla Torre (INFN, Trieste)

- 7:30 PM **ePIC Collaboration News** — 20m
  Speakers: John Lajoie (Oak Ridge National Laboratory), Silvia Dalla Torre (INFN, Trieste)
- 7:50 PM **EIC Project News** — 20m
  Speakers: E. C. Aschenauer (BNL), Rolf Ent (Jefferson Lab)
- 8:10 PM **Discussion** — 10m
  Speakers: John Lajoie (Iowa State University), Silvia Dalla Torre (INFN, Trieste)

8:40 PM → 9:00 PM **Report from the Third EIC-Asia Meeting** — 20m

Speakers: Yi Yang (NCKU), Yi Yang (National Cheng Kung University)

9:00 PM → 9:20 PM **Analysis Coordination Report** — 20m

Speakers: Rosi Reed (Lehigh University), Salvatore Fazio (University of Calabria and INFN-Cosenza)

Happy Birthday ePIC!

Dear ePIC Collaborators:

There are many ways one can count the ePIC Collaboration's "birthday":

- From the date the "ePIC" name was announced at the first Detector-1 collaboration meeting: July 26, 2022
- From the approval of the ePIC Charter: Dec 14th, 2022
- From the first Spokesperson elections: Feb 14th, 2023

Obviously, the last date holds a special meaning for us. Since we passed our first year of service this week, we want to take a moment to note the milestone and to thank the collaboration for all your hard work and support. When we reflect on the past year in ePIC, it is truly amazing the progress the collaboration has made towards realizing the first detector at the Electron Ion Collider. We are excited about the year to come and look forward to working with everyone in the ePIC collaboration to realize our shared scientific goals.

Regards,
John and Silvia

Results of Recent CC Votes:

- Voting to endorse the DE&I committee and application of five new institutions for membership underway completed Feb. 5th
  - Approved admission of five new ePIC Institutions
  - Endorsed the composition of the ePIC DE&I Committee

ePIC DE&I Committee:
Chair: Megan Connors (GSU)
Vice-Chair: Christine Nattrass (UTK)

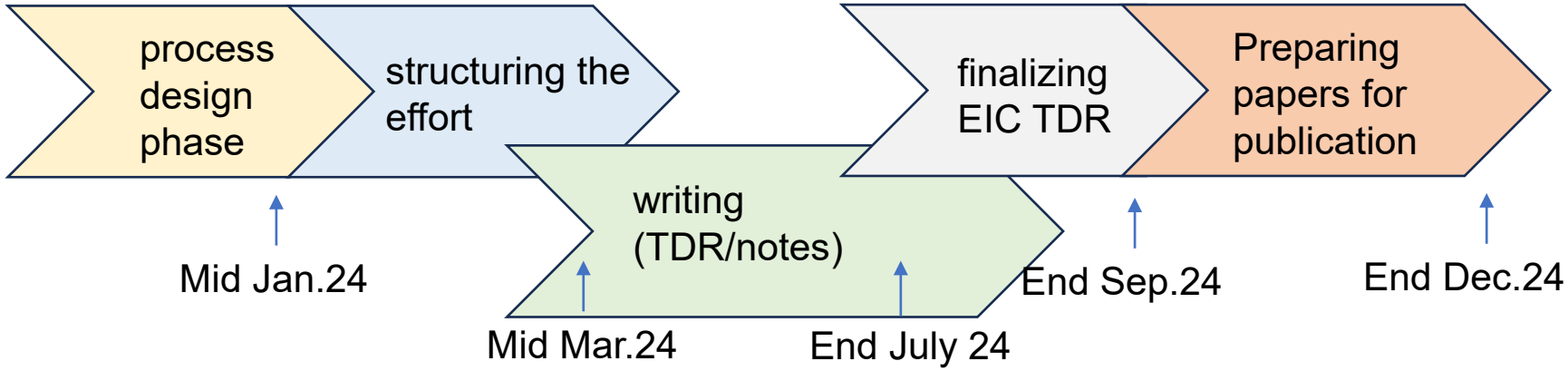
Members:
Francesco Bossù (CEA-Saclay)
Wouter Deconinck (University of Manitoba)
Narbe Kalantarians (Virginia Union University)
Iris Ponce Pinto (Yale University)
Maya Shimomura (Nara Women's University)
Allison Zec (University of New Hampshire)

Welcome to the ePIC Collaboration!

- University of Texas at Austin
- University Mohammed V in Rabat
- University Ibn Tofail in Kénitra
- University Mohammed Premier in Oujda
- University Mohammed VI in Bengurir

TDR Strategy and Publications

- In 2024 the ePIC collaboration will produce:
  - The ePIC contributions to the EIC TDR
    - The EIC TDR is the top priority
      - Chapters on *Physics Goals and Requirements* and *Experimental Systems*
      - Not just the document, but the simulations and detector R&D that form the basis
      - Requires close cooperation between the collaboration and the project!
- An ePIC Detector Design paper:
    - Derived and expanded from the *Experimental Systems* TDR chapter
- An ePIC Physics Performance paper:
    - Derived and expanded from the *Physics Goals and Requirements* TDR chapter
- Both to be published in a scientific journal (such as NIMA, JINST, or PRC)
- These publications will serve as a focus in developing the ePIC Membership and Publication policies.



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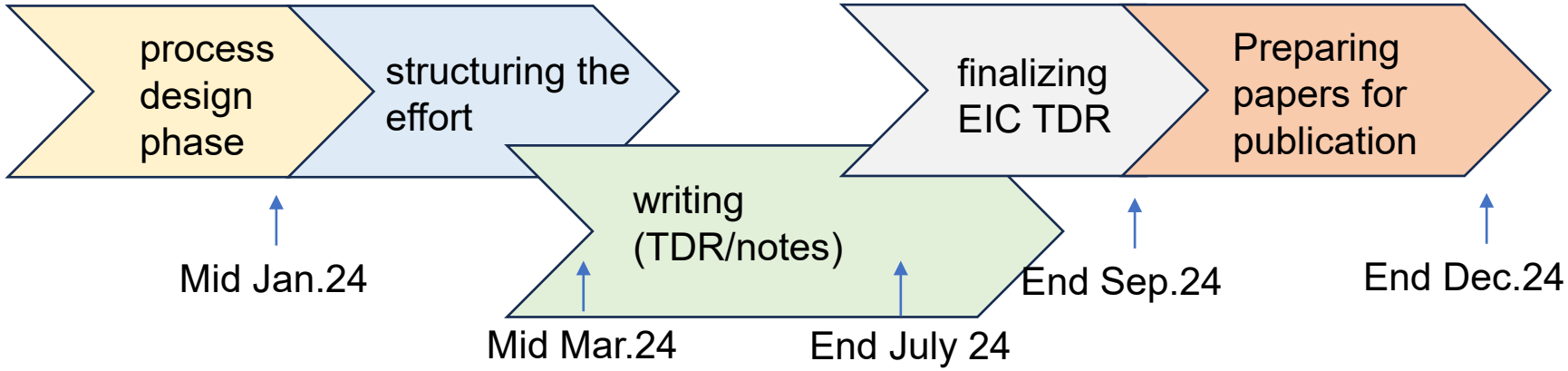
Recent DSC, CC WG Meetings
TIC Meetings Feb. 19th, Mar. 4th



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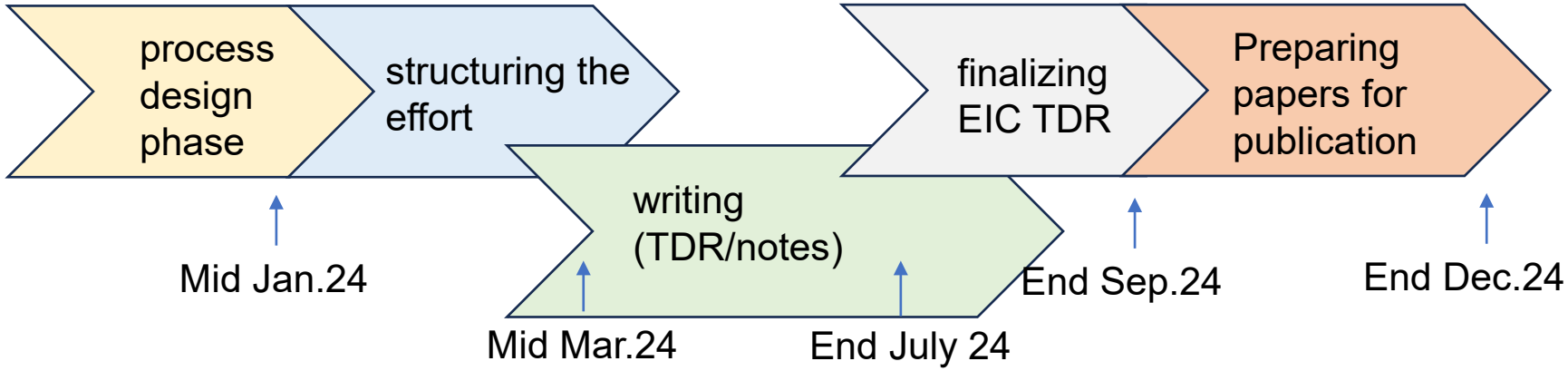
Recent PWG Meetings
Joint S&C/Analysis Mtg. Feb. 14th
Mtg. w/Indian Institutions Feb. 22nd
Analysis Coord. Mtg Feb 23rd



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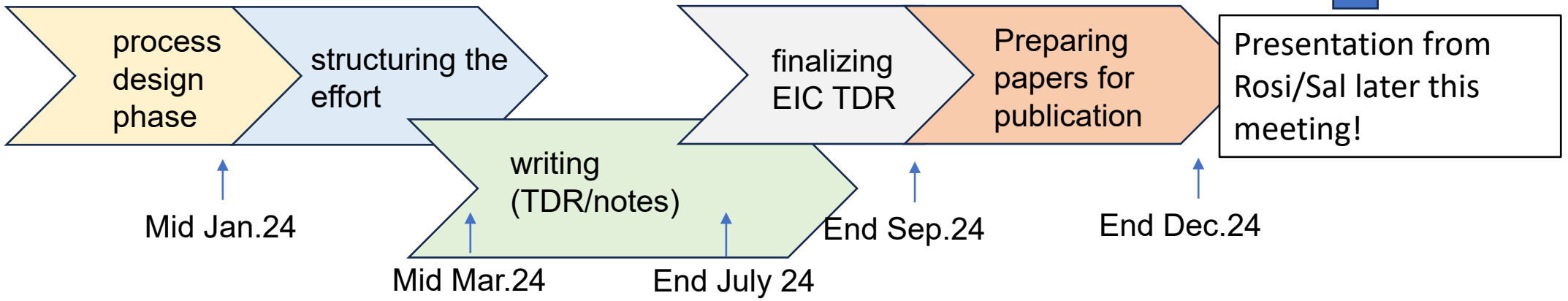
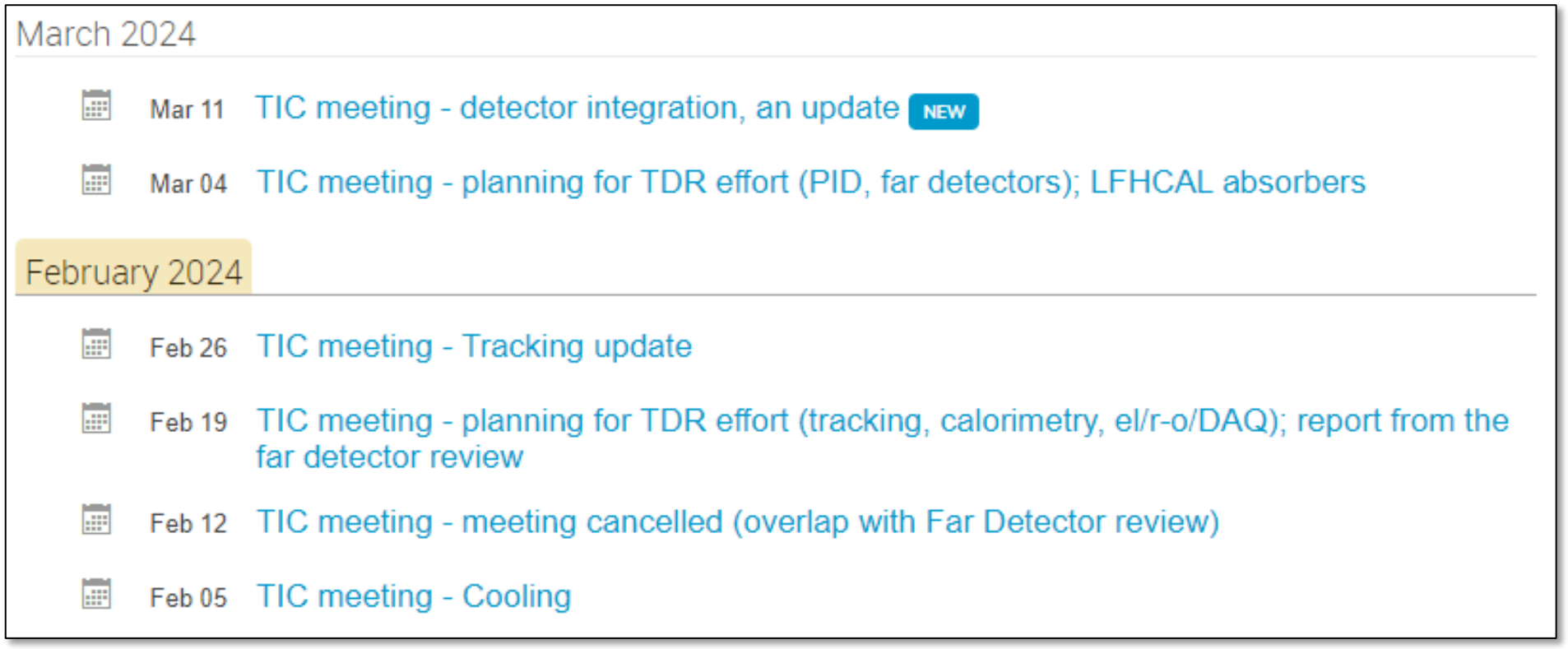


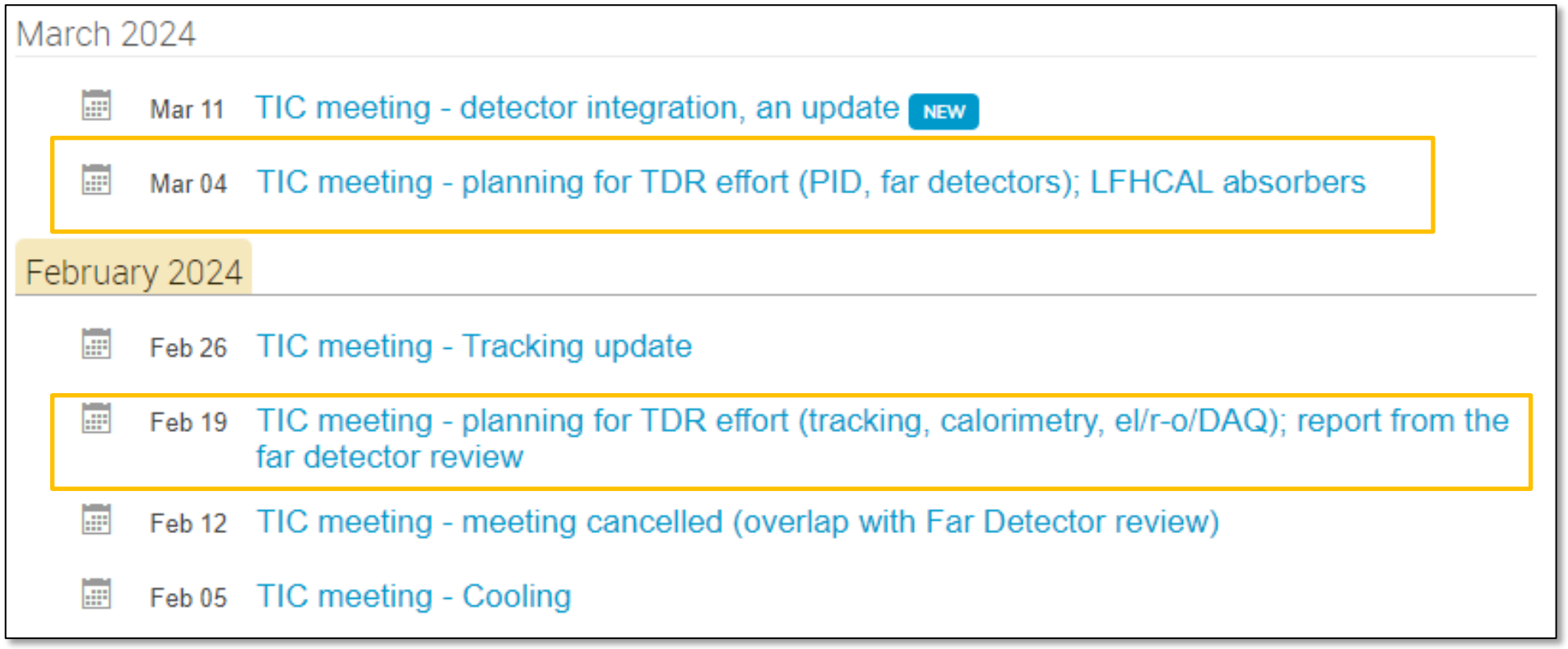
Presentation from Rosi/Sal later this meeting!

TIC Meetings….



TIC Meetings (almost) every Monday 9AM ET.

TIC Meetings….



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TIC activity

- **Feb 5th - COOLING** https://indico.bnl.gov/event/21650/

  - Report about the subsystems more demanding in term of cooling
    - SVT
    - ToF
    - dRICH
    - ECal
  - Goal : Initiate a dialog with the project about the overall matter of cooling for the ePIC detector

- **Feb 19th - Review Report/TDR Planning 1** https://indico.bnl.gov/event/21932/

  - **REPORT FROM THE FAR DETECTOR REVIEW (2/12/2024)**
  - Exhaustive report with focus on the closeout indications
  - A number of ***positive comments*** underlining the important progress, appreciation for synergies within ePIC, the quality of the physics and background simulations
  - Issues identified:
    - Neither fabrication nor assembly plans were presented
    - The decision about crystals for B0 and for ZDC is urgent
    - Better justification for requirements of the direct photon calorimeter at high luminosity;
    - The delicate installation of detectors inside B0 requires major work development.

TIC activity

- **Feb 19th - Review Report/TDR Planning 1 (cont.)** https://indico.bnl.gov/event/21932/

  - **PLANNING FOR TDR EFFORT**
  - Introductory considerations:
    - Need to **identify** via open and honest reports the **shortcoming in workforce and resources**;
    - The effort to **design a coherent ePIC detector** via a collaborative effort and shared information.
  - The point of possible duplication of the efforts in reporting to the TIC and to the Project was raised: Project and ePIC management will work to minimize duplicated effort.

  - Three reports have been presented:
    - **Tracking:** Already very rich and addressing almost all the items requested
      - New format of a joint meeting calling together the two tracking DSCs and software/analysis related to tracking reconstruction effort
      - Request to monitor the progress on longer time basis instead of monthly
    - **Electronics, Read-Out and DAQ:** an exhaustive report covering all the many sectors.
    - **Calorimetry:** an initial report where only LFHCAL has been presented in a condensed format.

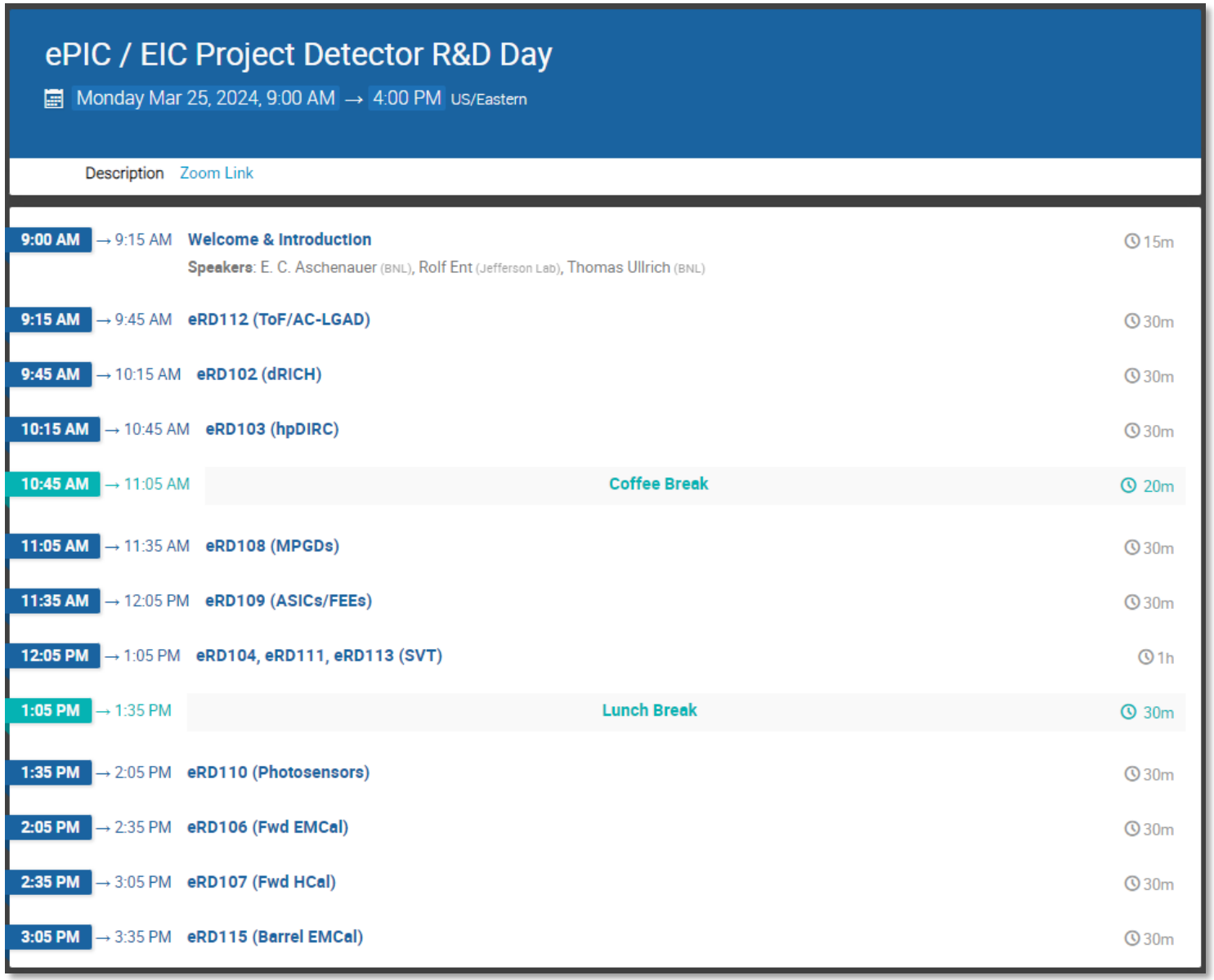
  - The planning for TDR for of **PID** and **Far-Forward/Far-Backward Detectors** will take place on March 4
    - Expect updates at future TIC meetings

ePIC/EIC Detector R&D Day

Joint meeting between ePIC/EIC technical efforts:

March 25th, 2024

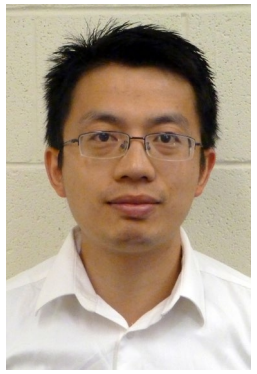
https://indico.bnl.gov/event/22388/

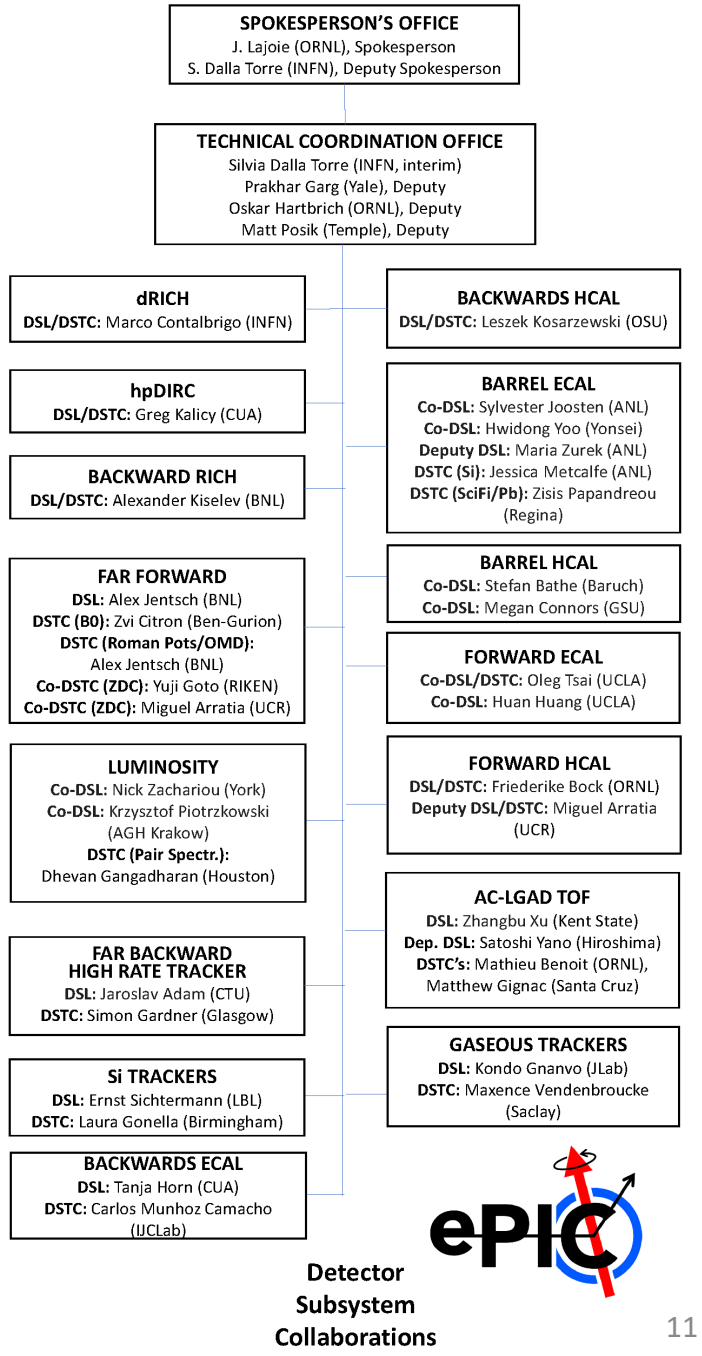


New TOF DSC Leadership

- Discussed in TOF meeting Feb. 20th:
  - **DSL:** Zhangbu Xu (BNL -> Kent State)
  - **Co-DSL:** Satoshi Yano (Hiroshima)
  - **DSTC** (Forward): Mathieu Benoit (ORNL)
  - **DSTC** (Barrel): Matthew Gignac (Santa Cruz)

- Many thanks to Zhenyu Ye for his outstanding leadership of the TOF DSC over the past year!





Next ePIC Collaboration Meeting

- Lehigh University Bethlehem, PA
- July 22-28
- Jointly organized with the EICUG
- Planning a joint session with talks of common interest
- ePIC Meeting July 24-28th
- In contact with Tim Hallman regarding DOE meeting limits

https://indico.bnl.gov/event/20727/

High-Level Agenda July 22-28 (DRAFT)

Monday July 22	Tuesday July 23	Wednesday July 24	Thursday July 25	Friday July 26	Saturday July 27	Sunday July 28
Early Career	EICUG	EICUG	ePIC	ePIC	ePIC	(ePIC)
Early Career	EICUG	ePIC	ePIC	ePIC	ePIC	

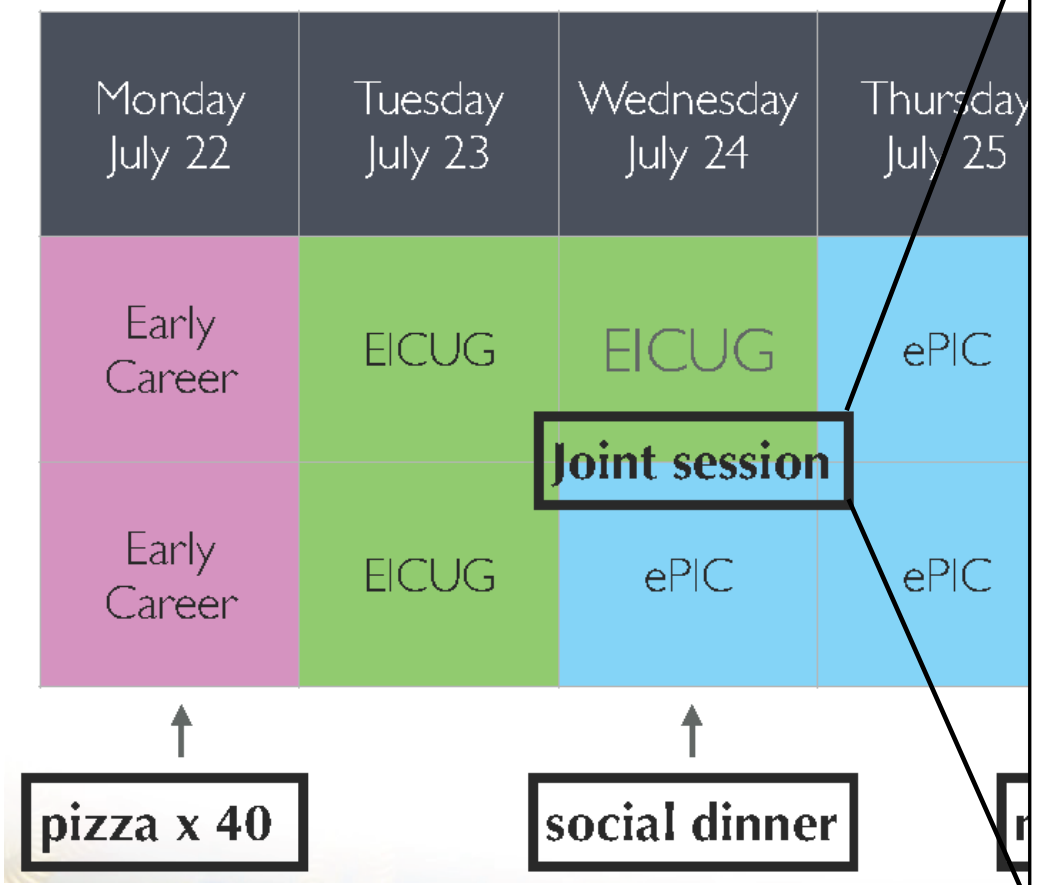
Joint session

pizza x 40

social dinner

networking reception

High-Level Agenda July 22-28 (DRAFT)



- **09:00 - 10:30 First Session**
  - 09:00 - 09:25 Report from Accelerator WG
  - 09:25 - 09:45 Report Polarimetry WG
  - 09:45 - 10:05 Report from 2nd Det. WG (and from discussion)
  - 10:05 - 10:20 Report from DE&I (announcing end-of-day session)
- **10:20 - 10:50 Coffee break**
- **10:50 - 12:30 Start of Joint Session**
  - 10:50 - 11:10 Report from NuPECC LRP
  - 11:10 - 11:40 Report from DOE
  - 11:40 - 12:05 Report from 2nd and 3rd RRB meeting
  - 12:05 - 12:30 Report from NSF
- **12:30 - 14:00 Lunch**
- **14:00 - 15:30 Joint Session**
  - 14:00 - 14:30 Status of ePIC Collaboration
  - 14:30 - 15:00 Report from the EIC Project
  - 15:00 - 15:30 Report from Technical Coordinator
- **15:30 - 16:00 Coffee break**
- **16:00 - 17:30 Last Session**
  - 16:00 - 17:30 Discussion with experts lead by joint DE&I

Higher Order Collaboration Meeting (NNCM)

Dear ePIC Collaborators:

We are currently soliciting proposals from institutions to host the January 2025 ePIC Collaboration meeting. Proposals will be accepted through March 29th, and should at a minimum address the following points:

1. We plan on a 5-day collaboration meeting in January, in a mixed parallel/plenary format. The proposal should include a set of preferred dates in the first half of January.
2. The room for the plenary session should be able to accommodate approximately 170 people. There should be 4-5 smaller rooms for the parallel sessions, each able to accommodate approximately 30-40 people. Session statistics from the January 2024 collaboration meeting at ANL can be found at: https://indico.bnl.gov/event/21564/contributions/86335/attachments/52481/89763/Session-Statistics.pdf
3. ePIC Collaboration meetings will continue to be hybrid. Seamless integration of virtual participants is important. We would need to know how the Zoom conferencing would be handled for both parallel and plenary sessions, what support would be available, and if registration would be required for virtual participants.
4. The venue should be arranged to encourage personal interactions between ePIC collaborators
5. International travel to/from the venue should be detailed, including visa requirements for entry into the host country
6. Any special requirements for site access (advance registration, etc.) should be detailed
7. Availability and logistics for lodging should be detailed
8. The estimated registration fee should be presented, along with what is proposed to be included in the registration fee

If there are any questions, please feel free to contact the four of us.

Regards,
John, Silvia, Ernst and Bernd

- Call sent Feb. 6th:
  - We realize that a lot of time is needed to plan these events
  - Call will be open through Mar. 29th
  - Expect a decision a few weeks after call closes
- Looking forward to many exciting proposals!

Software and Computing Meeting @ CERN

ePIC Software & Computing Meeting

Apr 22 – 26, 2024
CERN
Europe/Zurich timezone

Enter your search term

- Overview
- Registration
- Participant List
- Accommodation

Welcome to the second in-person meeting of the **ePIC Software & Computing** effort! We are thrilled to invite you to this exciting event taking place from April 22 to 26 at CERN. We look forward to your valuable contribution.

The purpose of the meeting is to collectively drive forward priority targets and provide an avenue for new collaboration members to actively engage:

- **TDR Progress (two days)**: We will review the progress of the software and simulation readiness for the TDR and work on critical tasks.
- **Software Tutorial (one day)**: There will be a complete day of tutorials. The schedule will be based on obtaining new members and the feedback of the collaboration on which aspects of the ePIC Software stack to cover.
- **Connections with HEP (two days)**: We will take advantage of the opportunity to have joint sessions with developers at CERN. These sessions will cover ongoing work on Geant4, Key4Hep, MC event generators, and streaming readout. Additionally, we will host a discussion with the HEP Software Foundation on the interplay of HEP and NP.

In-Person Meeting: The meeting will be held at CERN. There will be no registraton fee. For inforation on making a reservation at the CERN hostel, please see the **Accommodation** menu item.

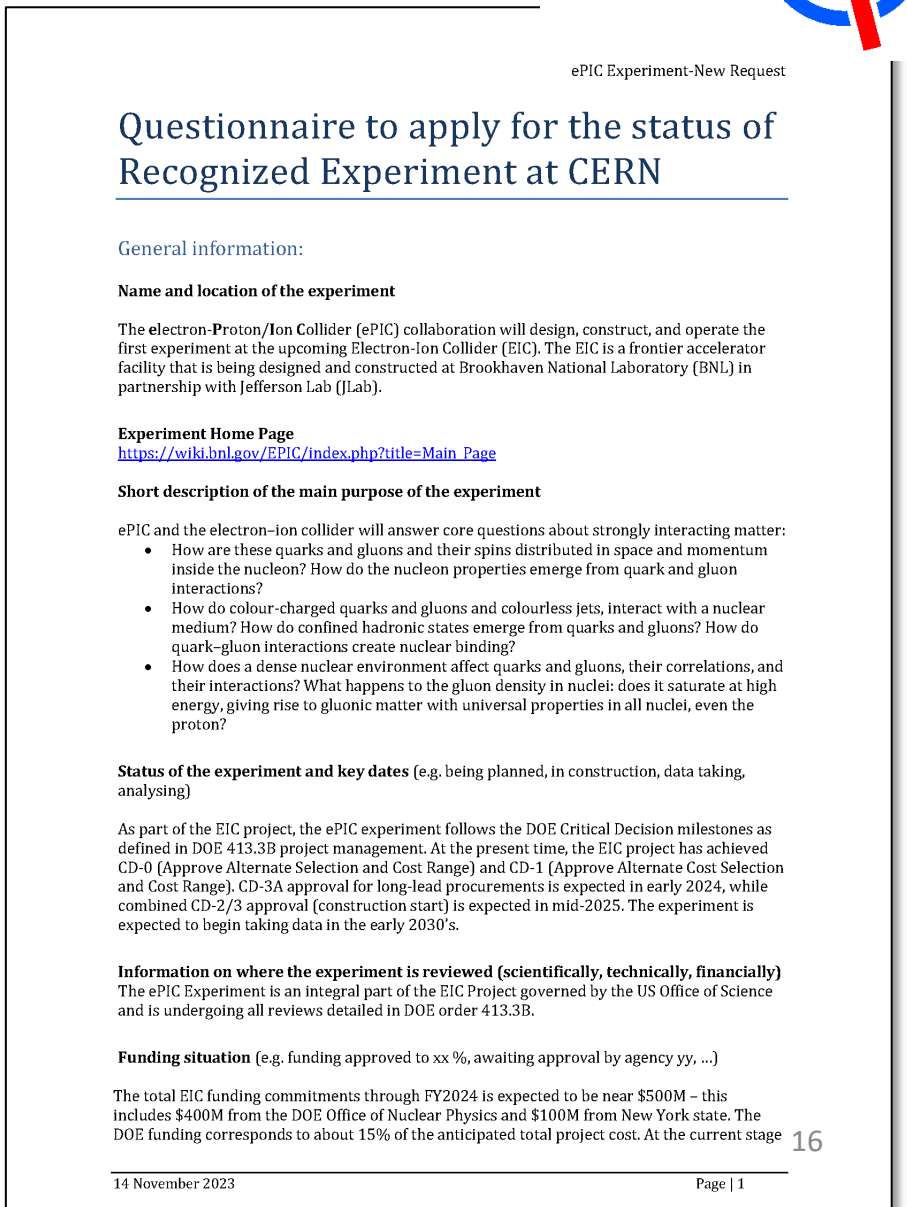
Remote Meeting: We will use Zoom for the remote meeting.

Registration:
https://indico.cern.ch/event/1343984/registrations/102560/

CERN Recognized Experiment

- ePIC Application for CERN Recognized Experiment:
  - ePIC leadership has submitted an application to become a CERN Recognized Experiment
  - Strong synergies between CERN and EIC
  - Important for access to CERN resources (test beams, …)
  - Increase visibility in the European community

- ePIC presentation Thursday, Feb 8th at 1:15M @ CERN
  - Well received!
- Next CERN Council Meeting March 21-22nd



ePIC Experiment-New Request

Questionnaire to apply for the status of Recognized Experiment at CERN

General information:

Name and location of the experiment

The **e**lectron-**P**roton/**I**on **C**ollider (ePIC) collaboration will design, construct, and operate the first experiment at the upcoming Electron-Ion Collider (EIC). The EIC is a frontier accelerator facility that is being designed and constructed at Brookhaven National Laboratory (BNL) in partnership with Jefferson Lab (JLab).

Experiment Home Page
https://wiki.bnl.gov/EPIC/index.php?title=Main_Page

Short description of the main purpose of the experiment

ePIC and the electron–ion collider will answer core questions about strongly interacting matter:

- How are these quarks and gluons and their spins distributed in space and momentum inside the nucleon? How do the nucleon properties emerge from quark and gluon interactions?
- How do colour-charged quarks and gluons and colourless jets, interact with a nuclear medium? How do confined hadronic states emerge from quarks and gluons? How do quark–gluon interactions create nuclear binding?
- How does a dense nuclear environment affect quarks and gluons, their correlations, and their interactions? What happens to the gluon density in nuclei: does it saturate at high energy, giving rise to gluonic matter with universal properties in all nuclei, even the proton?

Status of the experiment and key dates (e.g. being planned, in construction, data taking, analysing)

As part of the EIC project, the ePIC experiment follows the DOE Critical Decision milestones as defined in DOE 413.3B project management. At the present time, the EIC project has achieved CD-0 (Approve Alternate Selection and Cost Range) and CD-1 (Approve Alternate Cost Selection and Cost Range). CD-3A approval for long-lead procurements is expected in early 2024, while combined CD-2/3 approval (construction start) is expected in mid-2025. The experiment is expected to begin taking data in the early 2030's.

Information on where the experiment is reviewed (scientifically, technically, financially)
The ePIC Experiment is an integral part of the EIC Project governed by the US Office of Science and is undergoing all reviews detailed in DOE order 413.3B.

Funding situation (e.g. funding approved to xx %, awaiting approval by agency yy, …)

The total EIC funding commitments through FY2024 is expected to be near $500M – this includes $400M from the DOE Office of Nuclear Physics and $100M from New York state. The DOE funding corresponds to about 15% of the anticipated total project cost. At the current stage

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EC Seminar Series – Feb. 20th!

Good attendance!
https://indico.bnl.gov/event/21606/

Next EC Seminar:
Kong Tu (BNL) on UPC's

- **Seminar Details:**
- - **Speaker:** Dorota Bragg, James Cook University
- - **Topic**: Data Visualization - How to Present Our Research?
- - **Date & Time:** 20th February at 2:00 PM EST(Tuesday)
- - **Description**: The skills coaching session will cover the fundamentals and best practices in data visualization, exploring techniques to enhance the effectiveness of presenting data in a scientific setting.

In this session, Dorota will delve into the fundamentals and best practices of data visualization, providing valuable insights and skills coaching on how to enhance the presentation of research data. Her expertise in the field will be particularly beneficial for early career researchers seeking to improve the effectiveness of their data presentation in scientific settings.

We encourage all early career ePIC members to join us for this informative session and kindly share this invitation with your colleagues who might be interested.

- **Zoom Meeting Details:**
- - Date: 20th February (Tuesday)
- - Time: 2:00 PM EST
- - Zoom Link: https://osu.zoom.us/j/95086352845?pwd=UXo0eXFBSVNpbVU3cTRBcEFZMVBUQT09

Upcoming Notable Events…

- Collaboration Council Meeting – March 1st
- DIS 2024 in Grenoble, France April 8-12th , 2024
  - https://lpsc-indico.in2p3.fr/event/3268/
- ePIC Software and Computing meeting @ CERN April 22nd-26th
  - https://indico.cern.ch/event/1343984/
- EIC RRB Meeting – May 6-7th in Italy
- MC4EIC @ Durham University June 5-7th
  - https://conference.ippp.dur.ac.uk/event/1292/
- JLab Users Meeting, June 8-12th
  - https://www.jlab.org/conference/2024-jluo
- 4th EIC-Asia Workshop in Shanghai July 1-5, 2024
  - https://indico.cern.ch/event/1361239/
- Joint EICUG/ePIC Collaboration Meeting @ Lehigh University July 22nd-28th
  - https://indico.bnl.gov/event/20727/

Summary

- The ePIC Collaboration is strong, active and growing!
- There's a lot going on in ePIC!
  - Extensive planning underway for a coordinated effort to evolve the ePIC technical design and document it in a TDR and publications
    - This is a joint effort of the project and collaboration!
  - Planning for the next collaboration meeting(s) underway
- TDR planning and work ramping will continue to ramp up through February and March
- Next ePIC General Meeting: March 8th @ 10:30AM ET


BACK UP

ePIC Collaboration Web Presence

Integrated into the main EIC website through the top navigation. Page contains contact information and link to the ePIC Wiki.

Gary Schroeder, Karen McNulty Walsch, Thomas Ullrich, JGL

Animations courtesy of UC Riverside group.

Continuing to update and improve.

https://www.bnl.gov/eic/epic.php

ePIC Resources

- Public Website - https://www.bnl.gov/eic/epic.php
- Mailing Lists – https://lists.bnl.gov/mailman/listinfo
- Indico Agenda - https://indico.bnl.gov/category/402/
  - ePIC Software and Computing: https://indico.bnl.gov/category/435/
- Wiki - https://wiki.bnl.gov/EPIC
- ePIC Software Training:
  - Landing Page: https://eic.github.io/documentation/landingpage.html
  - Tutorials: https://eic.github.io/documentation/tutorials.html
- Mattermost: https://chat.epic-eic.org

EICUG Membership

- The EICUG is a vital organization to promote the interests of the EIC community!
  - Without the EICUG we would never have gotten far enough to form ePIC!

- Please register your institution!
- Check with your EICUG IB representative to get registered as a member

- https://www.eicug.org/content/join.html