TC-office News

Silvia Dalla Torre, Prakhar Garg,
Oskar Hartbrich, Matt Posik

ePIC General Meeting, October 4, 2024

News of general interest

- **NEW !**

  Once per month, on the first Monday of each month, we will have **at TIC an update about progress in mechanics and installation**

  Speaker: Roland Wimmer

  First report on October 7

The most recent TIC meetings

Following the deadline for the preTDR draft Version0, **first compilation of the preTDR draft**, see in next slides

September 2024

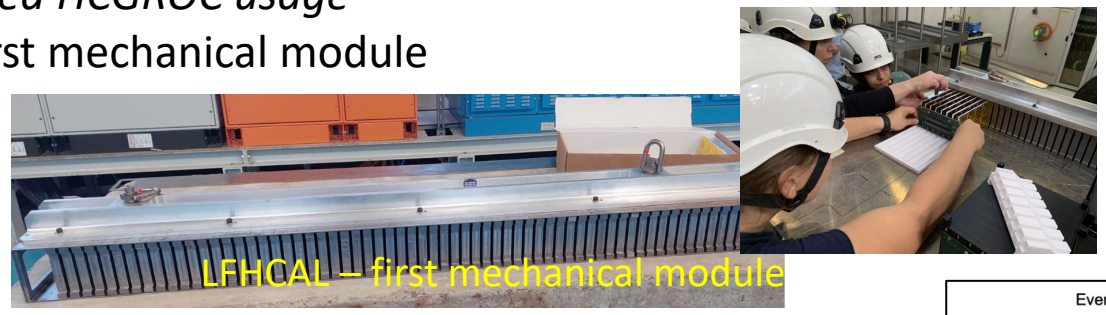
30 Sept TIC meeting - preTDR, Version0 Calorimeter testbeam

23 Sept TIC meeting - ZDC

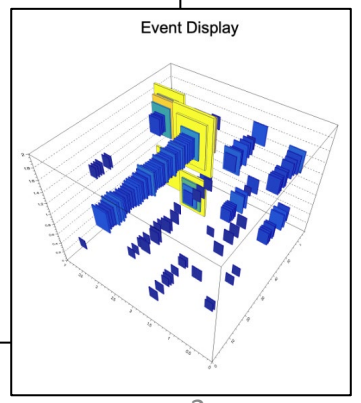
ZDC Crystal Calorimeter Baseline

An extended test beam in September for the LFHCAL (+ parasitically EEEMC), included HCGROC usage

- LFHCAL – first mechanical module



- Reading with HGCROC
- Collected data:
  - Muons, electrons 1GeV-5GeV, hadrons (+-) 3-15GeV
  - Meaningful data collected!



TIC meetings 9/23 - ZDC

- **At the TIC meeting, 2 rich reports:**
  - Physics case; Performance with the long SiPM-on-tile module (without including the crystals)
- **ZDC layout being discussed**
  - Baseline: long lead tungstate crystal in front of the SiPM-on-tile module
  - Proposal: short LYSO crystals

- **TIC recommendation:**

The adoption of the 162 cm-long **SiPM-on-tile calorimeter is confirmed**.
It is requested to continue to assess the performance in more realistic simulations, including SiPM dark noise and physical backgrounds and in particular beam gas interaction.

It is clear that while **long crystals in front of the SiPM-on-tile section will degrade the ability to reconstruct the vector direction for EM showers**, a short crystal solution has not been simulated or optimized. A **possible path is to configure the EM section of the ZDC** for the physics focus of an EIC running period by **including it for eA running** where the detection of low-energy photons is important to tag incoherent interactions, and **removing it for ep running**. This places a premium on **reserving space for low-energy photon crystal** section, but an argument cannot be made at this time to replace the existing baseline using long $PbW0_4$ crystals.

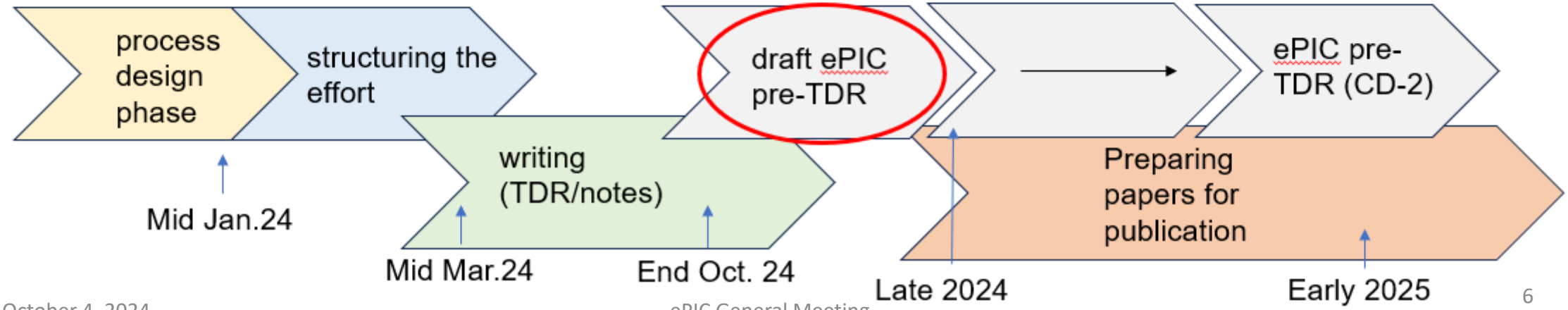
To advance the case of short LYSO crystals, the proponents need to address the following items:
- Implement in the **simulation a reasonably realistic LYSO response**;
- **Optimize the crystal length** for the detection of low-energy photons;
- **Select the most adequate sensors for the LYSO crystals** (SiPM versus APV).

preTDR draft

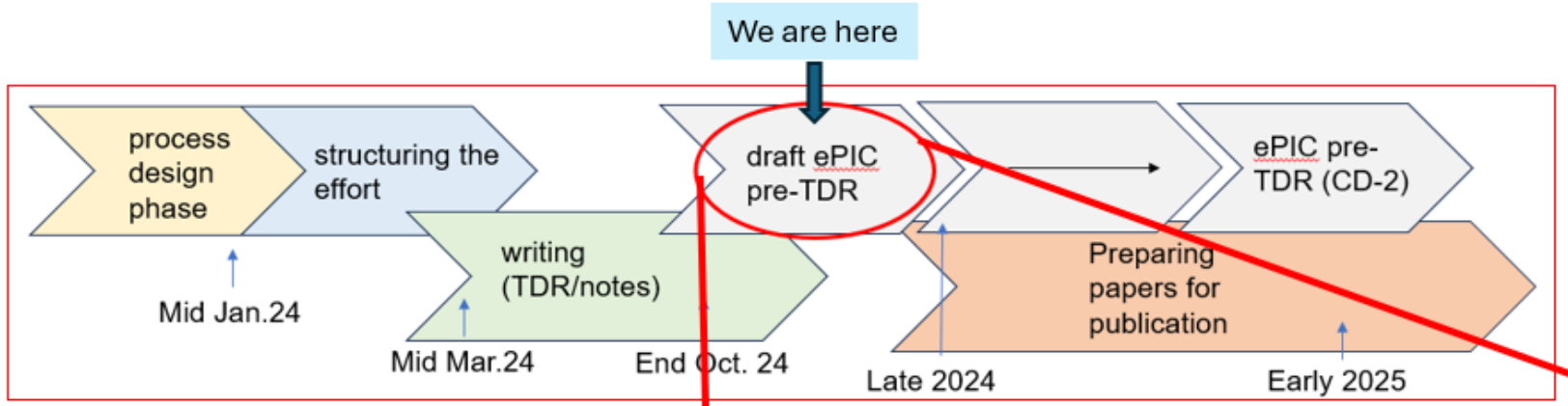
ePIC engagement in EIC pre-TDR

REMINDER

- Domain of ePIC contributions:
  - *Chapter 2 "Physics Goals and Requirements"*
  - *Chapter 8 "Experimental Systems"*
- ePIC planning: with priority to preTDR, prepare in parallel 3 publications on high-rank scientific journals, reshaping the preTDR material and focusing on
  - The ePIC Detector *(from chapter 8)*
  - The ePIC detector performance for EIC physics scope *(from chapter 2)*
  - The ePIC software and computing model *(from dedicated subsection in chapter 8)*
- *PROCESS TIMELINES:*



ePIC engagement in EIC pre-TDR - STATUS



ZOOMING

<u>2 preTDR draft versions in 2024</u>

- **Version0** by **September 29**
  - ✓ **ACHIEVED** (~ all subsystem texts inserted in the overleaf support tool)
- During October 2024, <u>internal review process!</u>
  - Recommendations to be integrated in Version1
- **Version1** **by December 1**
  - material for the <u>Jan. 2025 DOE OPA review</u>

NEW !!!

preTDR draft, Version0

The deadline has expired on September 29!

Thanks :

to Douglas Higinbotham who, with his careful assistance, has made the first version such that it could be compiled

Thank you to all DSLs and DSTCs for the abundant text which is already in

On September 30, Version0 uploaded in ZENODO:

“ EIC preTDR - Chapters 2 and 8, DRAFT, Version0 ”

preTDR draft, Version0 - nothing is perfect at first trial

Some sections still missing, but almost ready

- all subsystems in, a part a single one which is coming

THEREFORE

new upload of Version0 with dead-line on next Sunday October 6

Reviewing will start immediately after

Everyone in the collaboration is invited to submit comments and recommendations.

- On top of this, the **internal reviewers** will scrutinize with particular care the sections assigned to them.
- Reviewers' input and input from the whole collaboration **by October 20**.
- A **google form** will is available to submit inputs; address will be circulated by e-mail

preTDR draft, Version0

Thanks to our reviewers!

subsystems	subsection no.	subsection title	invited revievers
SVT	8.3.3.1	The silicon trackers	Taku Gunji
			Rachel Montgomery
MPGD	8.3.3.2	The MPGD trackers	Fulvio Tessarotto
			Yan Bedfer
Cherenkov-PID	8.3.4.2, 8.3.4.3, 8.3.4.4	The proximity focusing RICH; The high performance DIRC; The dual radiator	Prakhar Garg
			Chandradoy Chatterjee
ToF	8.3.4.1	The time-of-flight layers	Dominique Marchand
			Nick Apadula
HCAL			Sevil Salur
			Anthony Hodges
ECal-w/o-BIC	8.3.5.1, 8.3.5.3	The backward endcap electromagnetic calorimeter; The forward endcap	Caroline Riedl
			Sean Stoll
			Craig Woody
BIC	8.3.5.2	The barrel electromagnetic calorimeter	Mathieu Benoit
			Jin Huang
FF	8.3.7	Far forward detectors	Zhenyu YE
			Frank Geurts
Luminosity	8.3.8.1	The luminosity system	Oleg Tsai
			Miguel Arratia
low-Q2-taggers	8.3.8.2	The low Q2 tagger	Oskar Hartbrich
			Manoj Jadhav
el./r-o/DAQ	8.3.10	Readout Electronics and Data Acquisition	Pietro Antonioli
			Irakli MANDJAVIDZE
			Marco Battaglieri
software/computing	8.3.11	Software and Computing	Domenico Elia
			Peter Jones
			David Abbott

preTDR draft, Version0
What else should I know ?

- The "**Guidelines for Reproducing TDR Plots**“, presented and discussed at the TIC meeting on September 16th, are now finalized
  - Distributed to preTDR text writers
  - They can be found here : https://www.overleaf.com/read/dynqqzsttkcm#28f8f7
  - Please, adopt them in preparing the preTDR draft
  - Credit: Markus Diefenthaler

- Not yet **registered in ZENODO, ePIC community** ?

  - Instruction were provided at the ePIC general meeting on June 14, 2024
  - In the report “ePIC Collaboration NEWS” (https://indico.bnl.gov/event/22602/contributions/88353/attachments/55269/94564/ePIC%20Collaboration%20News%2014%20June%202024%20rev2.pptx)

    - Slides no.s 10 and 11 are dedicated to