

# **ATHENA PID weekly regular meeting**

## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## DIRC

*Monday, 28 March 2022 12:10 (3 minutes)*

Advice on design, simulation, performance issues

**Presenters:** KALICY, Grzegorz (CUA); SCHWIENING, Joe (GSI)

**Session Classification:** Roundtable updates

Contribution ID: 2

Type: **not specified**

## mRICH

*Monday, 28 March 2022 12:13 (3 minutes)*

Simulation & performance studies

**Presenter:** SARSOOR, Murad (Georgia State University)

**Session Classification:** Roundtable updates

Contribution ID: 3

Type: **not specified**

## dRICH

*Monday, 28 March 2022 12:16 (3 minutes)*

**Presenters:** DILKS, Christopher (Duke University); CISBANI, Evaristo (Italian National Institute of Health and Italian Institute of Nuclear Physics)

**Session Classification:** Roundtable updates

Contribution ID: 7

Type: **not specified**

## Weekly news

*Monday, 28 March 2022 12:00 (5 minutes)*

Conveners briefly update with news, comments and new directions from the Steering Committee (if any).

NOTE: The list below has been updated to summarize our discussions and conclusions.

[DIS abstract]

not accepted for talk, accepted as poster.

Anyone going to DIS interested in presenting it?

[LAPPD workshop]

Informal LAPPD workshop on March 21st 2022.

[DPAP report]

Given the outcome of the report we may want to spend some time to discuss it among us. A few points for discussion below, please bring up yours

- Tom raised the issue regarding how much we worked in ATHENA to put the dRICH into a satisfactory location/layout, the 50 cm gain and the shift of the magnet.
  - ATHENA should prepare a set of slides that illustrates how our constraints lead to our specific design choices. A key point should include our assertion that the aspect ratio ( $Z$ -length/ $R$ -length) should be close to one for robust performance.
  - It will be important for ATHENA to review and understand the supplemental material put forth by ECCE to learn about similar and complementary considerations they applied to their design.
- how satisfactory really is the dRICH layout of ECCE and whether ECCE costed the dRICH in a comprehensive way.
  - While cost will always be an issue, cost considerations are presently “second priority” as compared to robust design.
- the LGAD is another point of discussion, because we limited ourselves to the barrel leaving fwd/bwd to upgrades because of cost.
  - Cost is for now a secondary consideration.
- moreover LGAD is seen as a risk because of ASIC, so is not the risk in ECCE bigger because they have more square metres of LGADs ?
  - It will be useful for ATHENA to read and study the reply of ECCE to the DPAP panel regarding risk and risk mitigation. There they propose to switch to a hybrid LGAD and uRwell tracker (a configuration that should be studied for thickness).
- overall ECCE results in a cheaper detector despite 4pi LGAD coverage, which should make PID expensive. We might want to better compare with them the cost of the PID subsystem.
  - Cost will be a second stage priority.
- mRICH will likely get back in place given that the ECCE setup might not have the space for proximity focusing.
  - At some length a pRICH will always be better than an mRICH and vice versa. A study is needed to determine the maximum space for the eArm RICH and thereby the best technology choice.
- How can we achieve that best synergy in the community efforts on detector 1?
  - There is already some overlap of people across collaborations (less so in PID?). It is clear that D1 will require the efforts from the top people in our community and this will naturally lead to strong involvement and/or leadership of ATHENA people in D1.

- What are the priorities of national lab staff over the coming years?
  - It is anticipated that DOE will provide funding for R&D into D2 technologies so that D2 could begin one the order of 2 years following CD3 for D1 and the EIC project. There is thus limited time overlap between D1 and D2 efforts.
- ATHENA welcomes a similar and complementary discussion of the evolution of the PID designs in ECCE.
  - It is hoped that such presentation(s) will form the basis of the first D1 PID meeting.
- High level summary plots of the detector performance such as found in the ATHENA supplementary material (p reach vs eta) should be formed and reviewed as detector designs develop.

Contribution ID: 8

Type: **not specified**

## **AoB**

*Monday, 28 March 2022 12:55 (5 minutes)*

In case there is any other business to discuss, we can take it here. If discussion takes longer than 5 minutes, it means that it needs a proper space and will be point for next week.

Contribution ID: 9

Type: **not specified**

## Low momentum PID with TOF

*Monday, 28 March 2022 12:22 (3 minutes)*

**Presenters:** LI, Wei (Rice University); Prof. YE, Zhenyu (University of Illinois at Chicago); XU, Zhangbu (BNL); FAN, Wenqing; GEURTS, Frank (Rice University)

**Session Classification:** Roundtable updates



Contribution ID: **10**

Type: **not specified**

## **Low momentum PID with GridPix**

*Monday, 28 March 2022 12:19 (3 minutes)*

**Presenter:** GARG, Prakhar (Stony Brook University)

**Session Classification:** Roundtable updates

Contribution ID: 11

Type: **not specified**

## **B field impact on forward RICH**

*Monday, 28 March 2022 12:25 (3 minutes)*

**Presenters:** CHATTERJEE, Chandradoy (INFN Trieste (IT)); PREGHENELLA, Roberto (INFN Bologna)

**Session Classification:** Roundtable updates

Contribution ID: 12

Type: **not specified**

## DAQ

*Monday, 28 March 2022 12:28 (3 minutes)*

Gathering DAQ requirements from PID WG

**Presenters:** CAMSONNE, Alexandre (JLAB); LANDGRAF, Jeff (Brookhaven National Laboratory)

**Session Classification:** Roundtable updates

Contribution ID: 13

Type: **not specified**

## LGADs for TOF-PID

*Monday, 28 March 2022 12:31 (3 minutes)*

simulation & performance studies, design, cost estimate etc.

**Presenters:** YANG, Shuai (Rice University); Prof. LI, Wei (Rice University)

**Session Classification:** Roundtable updates

Contribution ID: 14

Type: **not specified**

## SiPM for RICH optical readout

*Monday, 28 March 2022 12:34 (3 minutes)*

R&D on SiPM as an option for the readout of the forward RICH

**Presenter:** PREGHENELLA, Roberto (INFN Bologna)

**Session Classification:** Roundtable updates

Contribution ID: 15

Type: **not specified**

## **Pressurised argon for the gaseous RICH**

*Monday, 28 March 2022 12:37 (3 minutes)*

mechanical studies and simulations for a pressurised argon vessel for the forward gas RICH

**Session Classification:** Roundtable updates

Contribution ID: 16

Type: **not specified**

## **LAPPD option for photon readout**

*Monday, 28 March 2022 12:40 (3 minutes)*

R&D on LAPPD detectors must not be forgotten

**Presenter:** DALLA TORRE, Silvia (INFN, Trieste)

**Session Classification:** Roundtable updates

Contribution ID: **18**

Type: **not specified**

## **Barrel eCal with tracking and timing capability**

*Monday, 28 March 2022 12:43 (3 minutes)*

**Presenters:** ZUREK, Maria (Argonne National Laboratory); REIMER, Paul E (Argonne National Laboratory)

**Session Classification:** Roundtable updates