

Minutes of the 177th EATM Meeting held on 5th November 2024

Minutes and slides available at <https://indico.cern.ch/event/1474926/>

Present: L. Nevay (BE-EA, chair), C. Ahdida (HSE-RP), J. Bernhard (BE-EA), M. Brugger (BE-EA), L. M. Bueno (EP-UFT), N. Charitonidis (BE-EA), H. Danielsson (EP-DT), E. Dho (EP-DI), R. Folch (BE-EA), J. Friedrich (EP-UFT), X. Genillon (SY-EPC), S. Girod (BE-EA), A. Goillot (BE-EA), M. Jaekel (EP-DT), N. Y. Kahn (BE-EA), M. Lazzaroni (BE-EA), J. Lehtinen (EN-CV), B. Maksiak (EP-SME), P. Martinengo (EP-DT), D. McFarlane (EN-AA), M. Mentink (EP-ADO), F. Metzger (BE-EA), A. Onnela (EP-DT), R. Piandani (EP-DT), V. Poliakov (EP-UF), T. Poschl (EP-LBD), B. Rae (BE-EA), G. Romagnoli (BE-EA), I. O. Ruiz (SY-BI), S. Schuh-Erhard (BE-EA), P. Schwarz (TE-MS), B. S. Sulpice (EN-EL), B. M. Veit (EP-UFT).

Apologies: D. Banerjee.

The previous minutes were approved.

Action items (L. Nevay) – Slides

It was highlighted that an action item was added for the ECR for infrastructure changes for the NA61 liquid hydrogen run.

Key information from Different Meetings

SBA Highlights (L. Nevay) – Slides

Regarding the treatment of electrical non-conformities in EHN1, HSE have been advised to disregard the workshop area as this will in any case receive new electrical infrastructure that they will validate.

The EHN1 barracks have been cleared in preparation for the workshop reconfiguration and the next step is the dismantling of the barracks in November.

A scaffolding and cover have been erected over the NA61 electrical cabinets giving temporary protection against leaks and a permanent solution will be installed during the YETS 24/25.

For chemical disposal in PPE146, an RP inspection was done and new containers have been purchased. The liquid will be transferred to new barrels and removed shortly.

The BASE STEP experiment successfully transported free (~95) protons in a vessel around CERN (a world first) and anti-protons will soon be tested.

ECRs (G. Romagnoli) – Slides

The status of the ECRs for information and future approval was summarised and the full list can be found in the slides. Two documents were presented for information. Of note was the ECR for the extension of BA81: the ECR was circulated and received several comments. However, it was recently rejected by the IEFC as the work has already taken place. It will be replaced with an engineering specifications document. Similarly, the ECR for bathrooms in BA81 will be rejected and replaced with an engineering specifications document also.

Four documents were presented for approval:

- Storage of 35 magnets in TT61 for ET and BST projects. **Approved.**
- Vacuum chamber installation in F61.MBXHD025 for CHIMERA/HEARTS. **Approved.**
- EHN1 Jura workshop area and buffer zone refurbishment. **Y. Kadi** asked to change the ECR title (done) and that the specification for grey room should be included. **Approved.**
- M2 beamline vacuum modifications during YETS24-25. **Approved.**

M. Jäekel commented that the ECR for the GIF++ gas rack extension is nearly finished and the final checks are being completed. **C. Ahdida** asked whether the ongoing simulations for this should be added to which **M. Jäekel** asked that they should.

Planning and Important Dates (B. Rae) – Slides

The highlights of the East and North Areas are reproduced here. The full details for all areas can be found in the slides. Since the last presentation of the YETS 24/25 planning, two further weeks of physics time for the East Area have been gained due to the arrangement and coordination of various activities.

P. Martinengo asked for clarification of dates related to DSO and AUG tests as it conflicts with the planned inspection of GIF++. The GIF++ inspection involves an external contractor and delaying the visit due to the DSO tests would imply at least 1 week of physics time lost for GIF++. It was agreed to arrange an offline meeting to investigate moving the DSO test or GIF++ inspection.

Action: B. Rae to arrange meeting with EN-AA and GIF++ to arrange DSO and inspection dates.

Date	East Area Activity
27 th Nov. 2024	T09, T10 start of the EYETS 2024-2025
2 nd Dec. 2024	T09, T11 start of the EYETS 2024-2025
12 th Feb. 2025	B.352 hardware commissioning
3 rd Mar. 2025	B. 157 hardware commissioning
11 th Mar. 2025	East Area beam commissioning start
19 th Mar. 2025	East Area start of physics

Date	North Area Activity
30 th Oct. 2024	EHN2 and ECN3 physics stop. End of protons to EHN1
2 nd Dec. 2024	Start of the EYETS 2024-2025
17 th Feb. 2025	Start of mixed hardware commissioning and works
28 th Mar. 2025	Start of beam commissioning
14 th Apr. 2025	EHN1 start of physics
17 th Apr. 2025	EHN2, ECN3 start of physics

There will be **no access** to anywhere in the North Area on the **15th and 16th of January 2025**.

MWPC Spare Strategy (I. Ortega Ruiz) – Slides

The status of the spares for multiwire proportional chambers (MWPCs) was presented. The larger chambers (XWCM) have only one spare unit (with a few dead channels). Several small chambers (XWCA) are available. There are sufficient spares of the electronics but VME boards are failing and cannot be repaired. For these, a new generation of boards is being designed.

The first prototype (10 cm x 10 cm) was successfully tested in the lab. Whilst this took longer than anticipated to produce and test, many refinements were learned and teething problems were overcome. The team is confident in the production of larger 20 cm x 20 cm chambers.

Due to the critical situation of spares, a second prototype is foreseen to be constructed as soon as possible with planned completion in April 2025. Further funding has been requested and a fellow will soon start in SY-BI to aid in the design, construction and testing of new chambers.

L. Nevay asked how many chambers are going to be produced. **I. Ortega Ruiz** responded the initial production would be for five chambers and afterwards as many as needed depending on the observed failure rate. These are foreseen to be produced by April 2025.

G. Romagnoli asked why prototyping is necessary if the design and functionality remains the same. **I. Ortega Ruiz** responded that the majority of chambers are approximately 40 years old and the previous design is hard to recreate and does not make sense to reproduce this design. A simpler design is envisioned similar to the current delay wire chambers.

Feedback from Experiments for 2024 and Desiderata for 2025

IRRAD/CHARM (F. Ravotti) - Slides

IRRAD / CHARM has had a successful year of operation with 33 weeks for protons and 2.5 weeks of ions. The intensity KPI of 2.2×10^{16} protons / week was exceeded in 97% of the weeks in 2024 versus 36% in 2023, with typically a 27% increase in number of delivered protons per week on average.

T8 beam steering has overall been improved with over 90% of beam time having the beam spot within ± 2 mm in both axis. However, drifts of the beam centre are still noted to occur in two periods in the year similar to 2022 and 2023 and were not clearly correlated with PS operation.

Operation this year was smooth with only minor issues that were solved quickly. E.g. a small instability that resulted in a decrease of intensity (reason understood, and a water leak that stopped proton irradiation for few days).

It is requested to continue with the higher intensity next year as turn around with samples can be better anticipated and overall better use of time is made with required cooldown periods. Cryogenic infrastructure will be tested as experiments have asked for cryogenics throughout 2025. A user run for HEARTS will be two weeks with 6 space industry companies as a pilot run for next year.

Many thanks were given to all groups involved for such a successful year

L. Nevay inquired about the transverse beam position feedback and it was confirmed that auto-steering is being developed but not yet ready for operation.

AMBER (B. Moritz Veit) - Slides

The APX measurement start was delayed by five weeks mostly due to the required safety aspects of the liquid hydrogen target. Initially, there was very poor availability of the SPS with ~ 7 days of beam time lost. However, due to the proton run extension and the appreciated shifting of MDs and postponing the high-intensity Drell-Yan test, the desired statistics were collected. Thank you to all teams involved and for the rescheduling effort.

For the high-intensity Drell-Yan test, issues were encountered with the CEDAR. Namely, CEDAR2 was contaminated with air, then, CEDAR1 became later contaminated which cost approximately three days of beam time. However, several beam energies and intensities were tested with both beam charges and the anticipated statistics collected

L. Nevay commented that the procedure for the CEDAR installation will be improved to avoid these issues.

B. M. Veit commented that although they are not needed for the PRM for the next two years, it is felt important to still have two weeks every year to properly understand the CEDARs

NA62 (R. Piandini)

For NA62 there were three distinct data-taking periods; target intensities similar to 2021 for the normal kaon run; one week with low intensity; and a high-intensity run in beam dump mode. A total of 1.5×10^{18} protons on target were collected in agreement with expectation. For 2025, it is planned to have the same programme of three modes of operation. It was noted that the spill quality has been consistently better this year as compared to previous years. The access system problems from last year have been solved. Many thanks were given to **J. Bernhard** as well as all the teams involved.

NA64e/μ (L. Molina Bueno) - Slides

For NA64e, data was collected from the 24th of April to the 19th of June. Approximately 5.2×10^{11} electrons on target were collected and 2.3×10^{10} positrons. A new fast ADC was successfully tested in the ECAL and will be used for all calorimeters in future. Thanks to **N. Charitonidis** for the tremendous help and support.

In 2025, 10 weeks are requested in H4 with around 7-10 days of positrons and hadrons, The request is to first benefit from beam commissioning time to test new electronics.

For NA64μ, 2.4×10^{11} muons on target were collected between the 17th of July to the 4th of September. Empty target runs were used to address the main background sources which were found to be high momentum muons reconstructed as low momentum muons in the second spectrometer.

There was a problem with the magnet cooling that resulted in several stops including waiting for magnetic field measurements. Many thanks to **D. Banerjee** for all the tremendous help.

There is no request from NA66μ for beamtime in 2025 in M2. There is a request for two weeks in T9 for the hadron programme measurement of beam parameters and detector responses (especially calorimeters). Particle identification, a small magnet, and moveable tables will be needed and NA64μ is already in contact with **D. Banerjee** for organising these practicalities.

Thanking all involved teams for the successful year

NA61 (B. Maksiak) - Slides

In 2024, there was overall good detector performance and stable data-taking. Good beam intensity and spot size were reported and the spill structure was also noticeably better. It was noted that there is the ongoing moving beam issue related to the beam files loaded in other lines that required steering by ± 3 mm across the data taking period. A partial temporary solution was put in place where users from H8 would call ahead of time to NA61 when they were going to change beam file to anticipate the required steering.

It was noted that doors to EHN1 stayed open several times letting warm air in that impacted the detectors.

A water leak resulted in loss of three days during a beam slot of twelve days requested.

On Monday the 4th of November, an AUL was triggered that turned off the PC racks (no internet and phone connection). A meeting with EP Safety is organised to determine the cause of the problem as it was believed that this past problem was fixed.

For 2025, three weeks of beam time are requested in June followed by a calibration week in July, then a week of oxygen ions followed by a further four weeks of protons is requested. The beam parameters for protons should be the same as this year.

Thanks were given to all involved groups for all help during the year

N. Charitonidis commented that the moving beam issue was investigated but no clear reason was found.

CLOUD (A. Onnela) - Slides

The CLOUD facility reconstruction has been fully completed with the remaining chemical lab commissioning, which was needed due to the East Area renovation. There was a technical run in May that was completed successfully. The physics run is currently ongoing and there are no facility issues.

There was three weeks of test run by the P349 experiment in August that had a quick installation and removal thanks to **A. Ebn Rahmoun** for organising the efficient changeover.

For 2025, it is planned to have a physics run from September to December. A possible technical run in May has yet to be confirmed. CLOUD plans to run during LS3 with cosmic rays only.

Occasionally a problem is found with the T11 control room electronic lock which does not work for new personnel even if all conditions met (critical for shifts on weekends or nights). These problems are solved but with delays and varying performed actions.

L. Nevay asked to be included in the tickets to follow-up the access problems.

M. Jaekel mentioned that this should be pushed to the TIOC as it affects operation but it should be fixed now.

CERF (C. Ahdida)

The 2024 CERF run was successful without issue and went to plan. For 2025, a similar request is made.

GIF++ (P. Martinengo)

GIF++ had a smooth operation year and had good quality and availability of beam and were not significantly impacted by any problems in SPS throughout the year. There was good collaboration with DRD1 and the NP04 neutrino platform with easy negotiation of access. All groups were thanked for their support in a successful year.

HiRadMat (A. Marie Goillot) - [Slides](#)

2024 was a smooth run with three beam time weeks. Pre-commissioning helped a lot to make better use of beam time. Overall, the beam time used was slightly shorter while still collecting desired statistics. A new version of Vistars and the logbook were deployed where the BTV data is now shown online. This year, the beam dump did not reach critical temperatures and no windows were broken.

In 2025, five experiments are planned to take place during four HiRadMat weeks.

A big thank you was given to all the members of the working group as well as all those in the ATS sector their dedication and help in the operation of the HiRadMat facility.

AOB

No AOB

F. Metzger, L. Nevay, 20th November 2024