

ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE  
**CERN** EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

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**RESEARCH BOARD**

**MINUTES OF THE 249<sup>th</sup> MEETING OF THE RESEARCH BOARD  
HELD ON WEDNESDAY 5 JUNE 2024**

Present F. Alessio, G. Arduini (replacing R. Jones), R. Bello\*, T. Bergauer, T. Cass, R. Forty (Secretary), F. Gianotti (Chair), H. Heylen\*, E.B. Holzer\*, J.M. Jimenez\*, M. Lamont\*, G. Lehmann Miotto (replacing M. Krammer), J. Nash\*, M. Pfutzner, E. Porcari, S. Roesler (replacing B. Delille), F. Simon, U. Wiedemann (replacing G. Giudice)

\* via video

Apologies B. Delille, K. Foraz, G. Giudice, B. Goddard, R. Jones, M. Krammer, J. Mnich

Items

1. Procedure
2. News and announcements
3. Report from the DRDC of 3-4 June
4. Report from the SPSC of 7-8 May
5. Report from the LHCC of 29-30 May
6. Report from the INTC of 22-23 May
7. Any other business



## 1 PROCEDURE

- 1.1 F. Gianotti opened the meeting. The minutes of the last meeting [1] were approved without modification. There was one matter arising from item 6.1 of those minutes, concerning the assembly work for **Hyper-Kamiokande** (RE45) that will take place at the Neutrino Platform. The work concerned has been specified in an Addendum to the Letter of Intent submitted to the SPSC [2]. **The Research Board granted conditional approval for this Neutrino Platform activity, with reference number NP08, subject to the SPSC review and approval of the Addendum.**

## 2 NEWS AND ANNOUNCEMENTS

- 2.1 F. Gianotti reported that the Council had unanimously approved the proposed schedule for the next update of the European Strategy for Particle Physics. The deadline for submission of input from the community has been set at the end of March 2025, and the Open Symposium (where the input to the strategy is discussed) will be held on 23-27 June 2025. Drafting of the strategy will take place in December, with the aim that the updated strategy be approved by Council in June 2026. The next step will be to establish the membership of the bodies that will drive this process, in particular the Strategy Secretariat and the European Strategy Group; those appointments will be made at the June Council meeting.
- 2.2 The 2024 Medium-Term Plan (MTP) of CERN has been prepared for approval by Council in June, with the main changes in the scientific programme being that it now includes full funding for the intensity upgrade of the beamline to the ECN3 experimental area, and the CERN share of the funding for the SHiP experiment that will exploit that beamline; additional funding has also been allocated for the completion of the Feasibility Study for the FCC, as well as the “pre-TDR” phase of the project, which would be needed, assuming a successful outcome of the Feasibility Study, to provide the further detailed technical and cost information that would be required for a decision to be taken end of 2027 or beginning of 2028 on whether or not the project should go ahead.

### 3 REPORT FROM THE DRDC MEETING OF 3-4 JUNE

- 3.1 T. Bergauer reported from the meeting of the DRDC [3], including information about the DRD Managers Forum. This is an informal body set up by the ECFA Detector Panel at the request of the DRD collaboration managements to provide a forum for communication and discussion of common issues among the DRD collaborations. One such topic is the Memorandum of Understanding between the institutions of each DRD collaboration and CERN. The main body of the MoU will be physically or electronically signed by each of the institutions and will contain the obligations of CERN as host laboratory, industrial involvements, common fund, definitions of work packages and working groups; it is intended to remain unchanged throughout the lifetime of the collaboration, while annexes will describe specific work and commitments and everything that may change over time. A template for the MoU has been prepared and should soon be distributed to the managements of the DRD collaborations.
- 3.2 **DRD3** (Solid-state detectors) was preliminarily approved in December 2023 so that work towards establishing the collaboration could progress, on the condition that the new collaboration structure be established in a timely fashion. The DRDC appreciates the efforts made by the collaboration to address many of its concerns leading to submission of an updated proposal [4]. The DRDC looks forward to a work programme being defined that achieves the goals of the proposal and is supported by the needed resources; this programme is expected by the end of 2024 with the drafting of the MoU. **The Research Board confirmed the approval of DRD3 for an initial period of three years.**
- 3.3 **DRD5** (Quantum and emerging technologies) has made intensive effort to gather together a diverse set of potential collaborators in order to produce a high-quality proposal [5]. DRD5 initially targets the identification of emerging quantum technologies that could be used in future particle physics applications. The proposal therefore contains milestones and deliverables that are not yet resource-loaded, to enable community building in the first phase of the collaboration. The DRDC suggests that the process of defining resource-loaded work package structures is started for the more mature projects as soon as possible. Institute responsibilities for deliverables should be assigned in due course. The collaboration is encouraged to establish contact with the other DRDs on possible areas of common projects. **The Research Board approved DRD5 for an initial period of three years.**

3.4 **DRD7** (Electronics and on-detector processing) was congratulated by the DRDC on the high quality of their proposal [6]. The collaboration has categorized its membership into contributors who commit resources to particular projects and observers who follow the activities of the working groups. The DRDC appreciates the inclusion of the transverse activity to foster the exchange of knowledge, and encourages the collaboration to keep this activity open to the whole community; the involvement of the link persons from the other DRDs should be considered in developing this initiative. The DRDC encourages the collaboration to continue seeking new collaborators, in particular in the areas of activity identified in the ECFA roadmap that are not yet covered, such as system aspects of power distribution and data concentration, and to support work on DAQ concepts to guide subsystem electronics developments for large experiments. Tight collaboration outside Europe is currently hampered by the availability of tools and licensing issues. The DRDC looks forward to a Collaboration Board being established and the opening of the management structure to elections. **The Research Board approved DRD7 for an initial period of three years.**

#### 4 REPORT FROM THE SPSC MEETING OF 7-8 MAY

- 4.1 J. Nash reported from the latest meeting of the SPSC [3], including the annual review of experiments at the Neutrino Platform (NP02, NP04, NP06, NP07), as well as NA62 and WCTE. A proposal, still to be reviewed by the SPSC, has been submitted by the **MUonE** collaboration for a first phase of the experiment, aiming for a physics run in the M2 beamline during 2025 with a reduced version of the detector. An addendum to the **MADMAX** proposal has also been submitted, currently under review by the SPSC, which presents a compelling programme for axion searches during LS3, probing axion masses around  $80 \mu\text{eV}$  with unprecedented precision. The experimental technique has been validated with smaller prototypes and the apparatus is on track for data taking in 2026. The committee emphasises that any agreed programme will have to be compatible with North Area activities during LS3. The SPSC looks forward to seeing final results for the limit on the axion coupling from earlier measurements.
- 4.2 **NP02** (ProtoDUNE-VD, previously known as ProtoDUNE-DP before it changed from dual-phase technology to vertical drift of charge in single-phase liquid argon) has made excellent progress with the preparation of the Module-0 and improvements of the Charge

Readout Planes and Photon Detection System electronics, shown in the cold-box tests. The SPSC notes that work is ongoing for the preparation of the DUNE second Far Detector integration test at CERN. F. Gianotti commented that the resources required for such a test have not been submitted for approval yet and will need to be clarified.

- 4.3 **NP04** (ProtoDUNE-HD, previously known as ProtoDUNE-SP but renamed to emphasize the horizontal-drift technology) has had a successful programme of physics analyses, has completed the final Phase 2 prototype construction and liquid argon filling, and is ready for data taking with beam. The SPSC acknowledges the joint effort with NP02 regarding scheduling, and recommends the requested beam time, up to eight weeks, as long as the collaboration is ready to make effective use of that time.
- 4.4 **NP06** (ENUBET) has published their monitored beam study. The SPSC is pleased to see the preliminary results of the beam test of the demonstrator and supports the collaboration's effort to complete the measurement programme and analysis in 2024. Possible application of the monitored beamline technique for a physics experiment is under discussion within the Physics Beyond Colliders (PBC) study group; such an application would require a new proposal.
- 4.5 **NP07** (ND280) has successfully completed its deliverables to the ND280 upgrade of the T2K experiment in Japan. This concludes the SPSC review; future beam time requests, if any, should be handled within the context of T2K as a Recognised Experiment.
- 4.6 **NA62** is congratulated for the result on ultra-rare kaon decays and the SPSC looks forward to seeing the new  $K^+ \rightarrow \pi^+ \nu \bar{\nu}$  decay rate measurement based on the combination of the 2021 and 2022 data sets.
- 4.7 **WCTE** (Water Cherenkov Test Experiment) has successfully operated beam monitors for low-momentum charged particle identification and tagged photons. Progress has been made in completing the production and assembly of all the detector systems and the SPSC looks forward to seeing the detector installed in the T9 beam area at the East Area and the first results on particle discrimination and charged lepton scattering. The committee recommends that WCTE be the first experiment to operate in 2025, to keep the detector in place over the winter technical stop period.

## 5. REPORT FROM THE LHCC MEETING OF 29-30 MAY

- 5.1 F. Simon reported from the latest meeting of the LHCC [3]. Concerning the ATLAS and CMS Phase-2 upgrades, the projects continue to make good progress, transitioning to pre-production and production. However, technical problems resulted in additional delays which have eliminated the contingency on some critical subsystems, such as HGCAL and Tracker for CMS and ITk Strips for ATLAS. The LHCC observes that significant risks still remain, making further delays likely. The LHCC recommends that all stakeholders engage in a timely global discussion that takes into account the situation of the upgrade projects of the experiments and the machine, the importance of delivering the upgrade, and all consequences of a possible change of the LS3 schedule. Such a discussion will require a careful analysis of the remaining risks in the upgrade projects, and an evaluation of possibilities for acceleration and the associated resource implications. F. Gianotti noted that a cost and schedule review of LS3 will take place in September, and a decision on the schedule is expected to be taken at the beginning of October. Details of the Upgrade Groups (P2UG) remarks and recommendations are given below in the items for each experiment. Some stability problems have been observed in ATLAS with the lpGBT ASIC when operated at temperatures below  $-35\text{ }^{\circ}\text{C}$ . This component is widely used across the HL-LHC upgrade projects, and the LHCC recommends that the issues are followed up on, engaging all projects using the component and the development team (CERN EP-ESE).
- 5.2 **ALICE** are congratulated on the successful 2023 Pb-Pb data taking and the rapid first results, including measurements of the charged particle multiplicities at the highest Pb-Pb collision energies to date. Progress has been made on calibration, alignment and reconstruction and the LHCC notes the importance of a continuous and careful effort to achieve the full expected performance and to understand the high occupancy effects before the next Pb-Pb run. Following approval of the Technical Design Reports of the ITS3 and FoCal, a report is requested at the next LHCC meeting on initial order placement, design selections, funding and schedule. Good progress has been made on the ALICE3 design and R&D, and the LHCC looks forward to receiving the Scoping Document in due time for its next meeting.
- 5.3 **ATLAS** has released Physics Reports summarising the main results of Run 2 by topic. The LHCC is pleased to see that the area of Computing and Software is progressing

steadily thanks to the vast amount of work and dedication invested. Sound and continuous progress has been made in commissioning the Phase-1 triggers and the LHCC looks forward to the final decommissioning of the legacy triggers and the full operation of all the Phase-1 triggers. Recommissioning of the experiment has been successful with stable data taking, reaching an integrated efficiency of around 94.5%. A plan to ensure the installation of the infrastructure required for the Phase-2 upgrade is being developed. The LHCC regrets that the experiment management has to strive to retain, replace and recruit personnel in certain areas; proper running of the experiment requires an adequate commitment by all sides, and the LHCC fully supports the approach of the management to the problem of shifter shortages. The LHCC and the P2UG congratulate the experiment for the impressive amount of work going on across all fronts of the Phase-2 upgrade, particularly in the face of extremely challenging problems. Sensor cracking in the ITk strip detector remains the main concern, with a new approach recently found based on adding an interposer between layers of glue. The collaboration is urged to sustain the effort in all areas, and not to compromise the quality control necessary for a detector guaranteed to function throughout Runs 4 and 5 for the sake of timeliness.

5.4 **CMS** has had smooth and successful data taking, and the data size will be reduced through implementation of a unified nano-AOD format for Runs 2 and 3. The LHCC is concerned about the engagement of the collaboration in service activities, and the difficulty in finding strongly needed personnel for the upgrade projects. A new release has been made of open datasets accessible to the global scientific community, and the LHCC is impressed with the success, in terms of publications, of the previous open data releases. The LHCC is concerned about the persisting problems with the construction of the engineering building and the sub-optimal functioning of the HGAL clean rooms. The ZDC forward calorimeter suffered from an incident caused by the baking out of the LHC sector with the detector still in place, and the LHCC appreciates the measures introduced to improve the LHC-CMS communication. Positive results have been seen for the irradiation tests of systems with alternative mixtures/gases, and the LHCC strongly encourages moving to a 5% mixture of CF<sub>4</sub> as soon as possible. The LHCC and the P2UG congratulate CMS on the technical progress in all areas of the challenging Phase-2 upgrade projects, in particular on the successful transition to preproduction for the Barrel Timing Layer (BTL), the completion of the BTL Tracker Support Tube and the excellent results of the Endcap Timing Layer module test, yielding 45 ps timing resolution. The HGAL critical path is

driven by issues found with the HGCROC ASIC. All invested parties are urged to continue making the necessary investments in an expeditious way to deliver the project so that it can meet its physics goals in a timely manner.

- 5.5 **LHCb** has had a very successful start of run in 2024 and made significant improvements to address the challenges in data taking since last July, resulting in the detector being fully prepared for this year's operation. The LHCC congratulates the experiment for the recovery of the VELO after the accident last year and supports the prompt study of the effect of a residual VELO drift on physics performance after the applied corrections. Currently the full sum of the planned CERN contribution to the cost of the Particle Identification Enhancements for installation in LS3 is not yet covered in the outer years of the MTP; the LHCC encourages CERN to allocate the full funds required in future MTPs provided the project demonstrates its ability to spend resources on the expected funding profile. The Scoping Document for Upgrade II will be submitted to the LHCC in September and present three scenarios with cost ranging from 123 MCHF to 182 MCHF.
- 5.6 **WLCG** and the experiments have continued to make successful and efficient use of the computing resources. The four major experiments have worked on validating their software stack on new computing architectures such as ARM, to be ready to exploit the potential energy efficiency, performance or cost advantages that those might bring. The LHCC commends thorough benchmarking efforts being made, looks forward to the results of power efficiency tests with newer CPU models, and encourages the WLCG to streamline these findings to provide clear guidance to sites for their hardware purchases. A presentation on how the CERN EP SFT group and the HEP Software Foundation are collaborating towards the success of common scientific software is requested for a future LHCC meeting. The new project in SFT aimed at providing service and support to the experiments for common Machine Learning (ML) activities is welcome, and the LHCC recommends regular updates with the experiments on requirements for a common software framework to train and optimise ML models.
- 5.7 Partial Reversed Polarity optics have been introduced for collisions in ATLAS in 2024 to optimise the lifetime of the inner-triplet magnets at Point 1, but the LHCC notes the significant impact of the increased backgrounds due to this change on **FASER** and **SND**, where the number of high-energy muons has almost doubled. The LHCC appreciates the high degree of flexibility from the experiments, making use of opportunistic access to



exchange emulsions and to adapt to the challenging background conditions. The LHCC recommends that LHC experts explore mitigation strategies for the 2025 run with high priority, in time for the necessary corrective actions to be implemented during the year-end technical stop (YETS). The LHCC congratulates FASER for the release of new physics results, the successful deployment of the calorimeter readout upgrade, and the steady progress towards completion of the pre-shower upgrade project for installation during the coming YETS. The LHCC congratulates SND for the new neutrino results with 2022-2023 data presented at the winter conferences and looks forward to the first analysis of the emulsion sample for the summer conferences.

- 5.8 **AdvSND** (Advanced SND) has submitted a Letter of Intent and a subsequent Addendum for operation during Run 4. For further consideration, the LHCC would require: the systematic uncertainties on the main physics objectives to be quantified and compared to what could be achieved at SND without upgrade; the detector performance for all planned measurements to be quantified; the feasibility of the proposed civil engineering work to be evaluated; and the cost estimate to be updated to include that of the civil engineering, overall infrastructure and installation of the experiment, after clarifying funding with the hostlab. **The Research Board was concerned by the significant civil engineering work needed by SND for its potential upgrade during LS3 for operation in Run 4 (AdvSND). Following this meeting, the technical departments confirmed that no additional civil engineering work can be done during LS3. The Research Board therefore encourages AdvSND to reconsider their upgrade plans to take into account this conclusion. The Research Board also expressed concern that ambitious plans for AdvSND may reduce the resources available for SHiP.**
- 5.9 The LHCC recommends the urgent completion and deployment of the **MoEDAL** MAPP detector, to guarantee effective data taking in 2025 and to enable a timely review of the outrigger proposal.
- 5.10 A new experiment, **ALADDIN** (An LHC Apparatus for Direct Dipole moment INvestigation), is preparing a Letter of Intent for the measurement of dipole moments of charm baryons in a fixed-target configuration, using halo protons extracted from the LHC with bent crystals. It is planned for installation during LS3 at IR3, with no civil engineering work required. G. Arduini commented that the experiment has been discussed in the Physics Beyond Collider study group, and no showstopper had been identified from

the machine side. A precursor proof-of-principle test named TWOCRIST is in preparation to take data next year and will check the feasibility of the double crystal set-up in the machine during MD time.

## 6. REPORT FROM THE INTC MEETING OF 22-23 MAY

- 6.1 M. Pfutzner reported from the latest meeting of the INTC [3]. The total number of shifts accepted at **ISOLDE** so far includes around 1150 shifts for low-energy experiments and 700 at HIE-ISOLDE. Highlights from the 2024 runs include the first production of Pa beams at ISOLDE, record activities of  $^{147}\text{Tb}$  collections, first results from polarized neutron-rich nuclei, and a new array of neutron detectors at the ISOLDE Decay Station (IDS). Some key points related to safety were reported, including restrictions on the use of the crane, safety inspections, the Management Service for radioactive sources, and the required training for obtaining access to ISOLDE.
- 6.2 Over the 2023 operational period the **nTOF** facility received a total of  $2.3 \times 10^{19}$  protons on target over 203 days, representing a 14% increase compared to the initial expectation. Highlights include runs with  $^{64}\text{Ni}(n,\gamma)$  and  $^{243}\text{Am}(n,f)$ , and the  $^{140}\text{Ce}(n,\gamma)$  cross-section measurement that has recently been published and revealed discrepancies with current nuclear databases, which could have significant astrophysical implications. Activities during the YETS included the upgrade of the Wire Grid System in the FTN line, the global confinement of the target cooling station, and addressing radiation protection issues. In 2024, by mid-May, there had been 58 days of measurements, resulting in  $7.2 \times 10^{18}$  protons on target, 30% more than expected. This was possible due to the target now being homologated to receive higher power and the availability of pulses from the PS, and it was noted that this surplus is expected to balance out over the year.
- 6.3 Five proposals (including a letter of clarification) plus four letters of intent were granted shifts at ISOLDE, and three proposals plus three letters of intent were granted protons at nTOF, as listed in the following paragraphs. In total, 92 shifts at ISOLDE (out of 120 requested) were recommended for approval, and  $25.5 \times 10^{18}$  protons for nTOF (all of those requested). **The Research Board approved the INTC recommendations for the ISOLDE shifts and the nTOF proton delivery.**

- 6.4 **I275** *Assessing the parity inversion in  $N = 7$  isotones via  ${}^9\text{Li}(d,p){}^{10}\text{Li}$  (Development of  ${}^9\text{Li}$  beams) [7] was **granted 4 shifts**.*
- 6.5 **I276** *Data acquisition and Python processing using CAEN Digitizer DT5730S for Perturbed Angular Correlation Spectroscopy: the PACIFIC<sup>2</sup> route* [8] was **granted 5 shifts**.
- 6.6 **I278** *In-source laser spectroscopy of neutron-deficient lutetium and holmium isotopes, towards the proton emitters* [9] was **granted 8 shifts**.
- 6.7 **I279** *Testing the mass separation capabilities of the new ISOLDE isobar separator* [10] was **granted 6 shifts**.
- 6.8 **P670 CLL-058** *Single-particle aspects of high- $J$   $sd$ - $fp$  shell mirror energy differences (MEDs)* [11] was **approved for 9 shifts** and will be known as **IS757**.
- 6.9 **P701** *Study of  $\text{RaF}^-$  anions at CRIS* [12] was **approved for 12 shifts** and will be known as **IS758**.
- 6.10 **P702** *Study of the  $N = 28$  shell closure in the argon isotopes* [13] was **approved for 21 shifts** and will be known as **IS759**.
- 6.11 **P703** *Local study of Lithium Niobate domain walls* [14] was **approved for 12 shifts** and will be known as **IS760**.
- 6.12 **P708** *Coulomb Excitation and RDDS measurement of a Triaxial Superdeformed “ $\beta$ -band” in  ${}^{162}\text{Yb}$*  [15] was **approved for 15 shifts** and will be known as **IS761**.
- 6.13 **I273** *Commissioning of a new sTED setup with 27 modules for capture measurements at EAR2* [16] was **granted  $7 \times 10^{17}$  protons**.
- 6.14 **I274** *Response of stilbene scintillator to  $(n,n)$  and  $(n,n')$  reaction channel in TOF experiments* [17] was **granted  $6 \times 10^{17}$  protons**.
- 6.15 **I277** *Fission Fragment Identification Arm Detector Test to Measure  ${}^{235}\text{U}$  Fission Fragments at EAR2* [18] was **granted  $7 \times 10^1$  protons**.
- 6.16 **P569 Add.1** *Measurement of  ${}^{92,97,98,100}\text{Mo}(n,\gamma)$  relevant to Astrophysics and Nuclear Technology* [19] was **granted  $1.0 \times 10^{19}$  protons** and will continue to be known as **nTOF65**.

6.17 **P700** *Measurement of the neutron-induced fission cross section of  $^{236}\text{U}$*  [20] was **granted**  $9.0 \times 10^{18}$  **protons** and will be known as **nTOF89**.

6.18 **P705** *Measurement of the neutron-induced fission cross section of  $^{239}\text{Pu}$*  [21] was **granted**  $4.5 \times 10^{18}$  **protons** and will be known as **nTOF90**.

## 7 ANY OTHER BUSINESS

7.1 E.B. Holzer reported that an updated version of the 2024 User Schedule for the PS and SPS is available at <https://ps-sps-coordination.web.cern.ch/ps-sps-coordination/>

7.2 The **next meeting** of the Research Board will be held on 18 September 2024.

## ENCLOSURES

1. Minutes of the 3<sup>rd</sup> DRDC meeting held on 3-4 June 2024 (CERN-DRDC-2024-008/DRDC-M-003).
2. Minutes of the 153<sup>rd</sup> SPSC meeting held on 7-8 May 2024 (CERN-SPSC-2024-020/SPSC-153).
3. Minutes of the 158<sup>th</sup> LHCC meeting held on 29-30 May 2024 (CERN-LHCC-2024-009/LHCC-158).
4. Minutes of the 75<sup>th</sup> INTC meeting held on 22-23 May 2024 (CERN-SPSC-2024-047/INTC-076).

## REFERENCES

- [1] Minutes of the 248<sup>th</sup> meeting of the Research Board (CERN-DG-RB-2024-527/M-248).
- [2] The Hyper-K Underwater Electronics Assembly project (CERN-SPSC-2024-004).
- [3] The presentations are available at <https://indico.cern.ch/event/1396490/>
- [4] DRD3: Solid State Detectors proposal (CERN-DRDC-2024-011).
- [5] DRD5/RDq: Proposal on R&D on quantum sensors (CERN-DRDC-2024-010).
- [6] DRD7: Proposal for an R&D Collaboration on Electronics and On-Detector Processing (CERN-DRDC-2024-012).
- [7] Assessing the parity inversion in  $N = 7$  isotones via  $^9\text{Li}(d,p)^{10}\text{Li}$  (Development of  $^9\text{Li}$  beams) (CERN-INTC-2024-031).
- [8] Data acquisition and Python processing using CAEN Digitizer DT5730S for Perturbed Angular Correlation Spectroscopy: the PACIFIC<sup>2</sup> route (CERN-INTC-2024-035).

- [9] In-source laser spectroscopy of neutron-deficient lutetium and holmium isotopes, towards the proton emitters (CERN-INTC-2024-038).
- [10] Testing the mass separation capabilities of the new ISOLDE isobar separator (CERN-INTC-2024-043).
- [11] Single-particle aspects of high- $J$   $sd$ - $fp$  shell mirror energy differences (MEDs) (CERN-INTC-2024-040).
- [12] Study of  $\text{RaF}^-$  anions at CRIS (CERN-INTC-2024-030).
- [13] Study of the  $N = 28$  shell closure in the argon isotopes (CERN-INTC-2024-033).
- [14] Local study of Lithium Niobate domain walls (CERN-INTC-2024-034).
- [15] Coulomb Excitation and RDDS measurement of a Triaxial Superdeformed “ $\beta$ -band” in  $^{162}\text{Yb}$  (CERN-INTC-2024-044).
- [16] Commissioning of a new sTED setup with 27 modules for capture measurements at EAR2 (CERN-INTC-2024-026).
- [17] Response of stilbene scintillator to (n,n) and (n,n') reaction channel in TOF experiments (CERN-INTC-2024-028).
- [18] Fission Fragment Identification Arm Detector Test to Measure  $^{235}\text{U}$  Fission Fragments at EAR2 (CERN-INTC-2024-037).
- [19] Measurement of  $^{92,97,98,100}\text{Mo}(n,\gamma)$  relevant to Astrophysics and Nuclear Technology (CERN-INTC-2024-032).
- [20] Measurement of the neutron-induced fission cross section of  $^{236}\text{U}$  (CERN-INTC-2024-029).
- [21] Measurement of the neutron-induced fission cross section of  $^{239}\text{Pu}$  (CERN-INTC-2024-039).