

ISOLDE AND NEUTRON TIME-OF-FLIGHT EXPERIMENTS COMMITTEE

Minutes of the 76th meeting of the INTC
held on Wednesday and Thursday, May 22-23, 2024

OPEN SESSION

The meeting was held in a hybrid format: all presentations were via Zoom with the Committee meeting in person. The chairperson of the INTC (Marek Pfützner) opened the meeting by introducing Paolo Maria Milazzo, the new physics coordinator for n_ToF.

The meeting began with the facility reports followed by presentations of the submitted proposals and addenda. Presentations from the open session may be found at the following address: <https://indico.cern.ch/event/1405219/>.

Facility reports

ISOLDE physics report (Hanne Heylen)

Hanne Heylen started the physics report by summarising the received documents for the INTC meeting. Twelve documents were submitted for ISOLDE, corresponding to 120 requested shifts, and six documents were received for the n_TOF facility, resulting in a request for 255×10^{17} protons.

Next, an overview of all the accepted ISOLDE shifts (including the results of INTC 75) was provided. There are approximately 1850 open shifts of which slightly more than one-third of the shifts are allocated for HIE-ISOLDE experiments.

Important dates for the running period in 2024 were outlined. Protons for physics started on April 8th and will run up to November 25th, four weeks longer than originally foreseen. This will be followed by two weeks of Winter physics until December 9th and one session of the separator course. For 2025, the running period for ISOLDE will preliminarily run from March 25th until November 17th.

A summary of the first few weeks of physics in 2024 was given. In total, around 85 shifts were delivered up to May 17th, with the beam for six runs for INTC-approved documents as well as fifteen shifts for TISD measurements and almost ten shifts of stable beam for commissioning of new parts of experimental setups. Finally, a reminder was given on some key points related to safety at ISOLDE including temporary crane measurements, safety files and procedures, the loan of radioactive sources, and the required trainings for obtaining access to ISOLDE.

n_TOF physics report (Paolo Maria Milazzo)

Paolo Maria Milazzo began the physics report with an overview of the 2023 operational period. The n_TOF facility received a total of 2.3×10^{19} protons on target over 203 days, representing a 14% increase compared to the initial agreement. Preliminary results from two runs were presented: INTC-P-208-ADD-1 ($^{64}\text{Ni}(n,\gamma)$) and INTC-P-566 ($^{243}\text{Am}(n,f)$). Additionally, an article on the $^{140}\text{Ce}(n,\gamma)$ cross section measured at n_TOF was recently published in Physical Review Letters and highlighted in Physics magazine and the CERN Bulletin. The measurements revealed discrepancies with current nuclear databases, which could have significant astrophysical implications.

The technical report briefly outlined activities during the Year-End Technical Stop (YETS), including the upgrade of the Wire Grid System in FTN, the global confinement of the entire n_TOF target cooling station, and addressing radiation protection (RP) issues.

The report continued with a presentation of the 2024 schedule and a summary of the first weeks of physics. By May 22, there had been 58 days of measurements, resulting in 7.2×10^{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 in the PS. It was noted that this surplus would balance out over the year. For 2025, the preliminary running period for n_TOF is planned from March 31 to November 17.

Finally, some interesting resources about n_TOF were highlighted as well as the NuPECC recommendations. First, the significance of neutron facilities like ILL and n_TOF for fundamental nuclear research and applications was emphasised, advocating for their continued operation and upgrades. The Nuclear Astrophysics recommendations underscored n_TOF's critical role in providing nuclear data to understand the origin of chemical elements and recommended its full exploitation. Finally, it was noted that n_TOF uniquely meets the growing need for accurate high-energy (n,f) and (p,f) reaction measurements up to 1 GeV with accuracy suitable for a standard, and its capabilities should be fully utilized.

Documents presented during the open session

	Title	Spokesperson(s)
INTC-P-569-ADD-1	Measurement of $^{92,97,98,100}\text{Mo}(n,\gamma)$ relevant to Astrophysics and Nuclear Technology	Mucciola, Riccardo; Massimi, Cristian
INTC-P-699	Collinear Laser Spectroscopy of $^{223-226, 228}\text{Ra}^+$	Ingram, Phillip
INTC-P-700	Measurement of the neutron-induced fission cross section of ^{236}U at n_TOF	Zinovia, Eleme; Andreas, Tsinganis
INTC-P-701	Study of RaF^- anions at CRIS	Ronald F, Garcia Ruiz; Kieran, Flanagan
INTC-P-702	Study of the N=28 shell closure in the argon isotopes	McGlone, Abigail Charlotte; Perrett, Holly Anne; Warbinek, Jessica
INTC-P-703	Local study of Lithium Niobate domain walls	Schell, Juliana; Eng, Lukas

INTC-P-704	Implantation of ^{226}Ra for the measurement of its absolute nuclear charge radius	Cocolios, Thomas Elias and Knecht, Andreas
INTC-P-705	Measurement of the neutron-induced fission cross section of ^{239}Pu at n_TOF	Manna, Alice; Audouin, Laurent
INTC-P-706	Employing ROC to explore astrophysics milestones: nuclear structure of the N=Z nucleus ^{76}Sr	Vazquez, Rodriguez Liss
INTC-P-708	Coulomb Excitation and RDDS measurement of a Triaxial Superdeformed “ β -band” in ^{162}Yb	R.A. Bark

CLOSED SESSION

Present:

Oliver Aberle, Joaõ Pedro Esteves De Araujo, Christian Forssen, Bogdan Fornal, Sean Freeman, Hanne Heylen (scientific secretary), Anu Kankainen*, Jose Antonio Lay Valera, Silvia Lenzi*, Roberto Mantovan*, Alberto Mengoni, Paolo Maria Milazzo, Marek Pfützner (INTC chair), Zsolt Podolyak, Robert Page*, Sebastian Rothe, Julien Taieb, Pippa Wells

(*) Online

The minutes of the 75th meeting of the INTC were approved without modifications.

Discussion of the facility reports

ISOLDE report

The INTC congratulated the ISOLDE technical teams for the successful restart of the facility following annual maintenance, with around 85 shifts already completed for physics, beam development, and commissioning of new experimental equipment. It highlighted the positive outcomes observed with Pa beams, record activities for ^{149}Tb , as well as the smooth data-taking of IDS and VITO. Additionally, the Committee endorses the ongoing efforts to enhance safety at ISOLDE.

Discussions were held regarding the significance of the large number of accepted shifts at ISOLDE. It was clarified that the community is well-informed (e.g. the numbers are presented during each ISOLDE Collaboration Committee meeting) and generally not discontent with the situation. During scheduling, priorities are determined by the physics coordinator in consultation with various experimental collaborations, considering factors such as scientific priorities, equipment availability, PhD students waiting for data, and technical developments. It was pointed out that different collaborations have very different approaches in how they manage proposals internally. Generally, the large number of awarded shifts reflects a vibrant and active scientific community with substantial demand for the facility. In the context of managing the situation for Run 4, suggestions are made to review INTC policy during LS3, which coincides with the appointment of the new INTC chair. From the perspective of the technical teams (SY and BE departments), concerns about workload and resource management are raised. While proposal ranking is probably not suitable for ISOLDE due to the large scientific diversity, the INTC supports not overloading the technical teams and prioritising quality over quantity in shift delivery, which might be best implemented when the run schedule is being constructed.

n_ToF report

The INTC also congratulated the n_TOF collaboration on the successful restart after the YETS. It noted that the availability of protons has been excellent so far, exceeding the original demand. It was explained that this is due to the target's capability to handle the increased proton supply as well as the overall availability of protons. The Committee also thanked the n_TOF local team for the interesting, guided tour of the facility. For the Committee members not familiar with the facility, it was very useful to see the conditions under which the experiments discussed by the INTC are carried out.

Discussion and recommendations for received Proposals

INTC-P-699 Collinear Laser Spectroscopy of $^{223-226,228}\text{Ra}^+$ (13 shifts requested)

The proposal aims to conduct laser spectroscopy on the D1- and D2-like transitions in $^{223-226,228}\text{Ra}^+$ using COLLAPS to investigate symmetry violation in fundamental interactions. The proponents seek to enhance both statistical and systematic uncertainty by a factor of 10 on the isotope shift and a factor of 2-10 on the hyperfine parameters compared to previous measurements. This improvement, coupled with refined electronic-structure calculations, is expected to significantly reduce uncertainty in determining the magnitude of the Bohr-Weisskopf (BW) effect and the differential nuclear charge radius. While the INTC acknowledges the proposal's physics relevance, it requests a letter of clarification addressing specifically the following points:

1. What are the possibilities for the performing the measurements during the online period i.e. with protons rather than winter physics? What levels of Fr contamination are tolerable?
2. In case the run needs to be performed in the offline period, please present detailed irradiation requirements so the effect on the physics programme due to the need to pre-irradiate a target can be estimated.
3. How will the measurement of differential charge radii be used by theory? What nuclear models, that are relevant for future studies of PT violation in fundamental interactions, can be expected to benefit from this measurement?
4. How will the measurement of the Bohr-Weisskopf effect be used by theory? What nuclear models, that are relevant for future studies of PT violation in fundamental interactions, can be expected to benefit from this measurement?

The INTC recommends the submission of a letter of clarification.

INTC-P-700 Measurement of the neutron-induced fission cross section of ^{236}U at n_TOF (9×10^{18} protons requested)

The proposal aims to measure the neutron-induced fission cross section for ^{236}U , ranging from thermal energies to 0.5 GeV, by exploiting the specific characteristics of both n_TOF areas. While EAR-2 is chosen for its higher neutron flux and favourable signal-to-background ratio for low-energy measurements, EAR-1 provides high-resolution data crucial for energies exceeding 700 keV. The goal is to improve significantly the accuracy of current data and resolve long standing discrepancies of evaluations and different datasets in the low energy region, needed for the design, feasibility and sensitivity studies on advanced nuclear systems. Despite concerns about the Micromegas detector's efficiency, particularly at higher energies, the INTC agrees that addressing the limited availability of experimental data in the thermal and resonance regions is worthwhile, given the significant discrepancies in current libraries. The Committee endorses the proposal, noting its potential to generate a consistent and precise dataset across a wide energy spectrum.

The INTC recommends the approval of 9×10^{18} protons by the Research Board.

INTC-P-701 Study of RaF⁻ anions at CRIS (12 shifts requested)

The proposal focuses on testing the production of negative RaF molecules via a double charge exchange process. This will lay the groundwork for capturing cold, neutral RaF molecules, an important step for investigating fundamental symmetries and potential new physics phenomena. The INTC finds the proposal and presentation highly interesting and appreciates the clear and ambitious future vision outlined by the proponents. The Committee considers the proposed test a crucial step in advancing research within the field.

The INTC recommends the approval of 12 shifts by the Research Board.

INTC-P-702 Study of the N=28 shell closure in the argon isotopes (18 shifts requested)

The proposal seeks to investigate neutron-rich argon isotopes around the N=28 shell closure, via laser spectroscopy. Motivated by the changes in nuclear structure from ⁴⁸Ca down to ⁴⁴S and the presence of shape coexistence, the study aims to shed light on how structure and deformation evolve along the N=28 isotones. The INTC is of the opinion that the experiment is feasible, with strategies in place to address expected contamination issues. While the Committee finds the physics motivation convincing, it suggests that providing a clearer explanation of the theoretical models that will be used to interpret the data would have been beneficial. The Committee recommends to explicitly include the three shifts without protons, as during this time the facility will not be available for other physics experiments.

The INTC recommends the approval of 21 shifts by the Research Board.

INTC-P-703 Local study of Lithium Niobate domain walls (12 shifts requested)

The proposal seeks to investigate the LiNbO₃ (LNO) materials family through perturbed angular correlations focusing on anomalies observed in periodically poled single crystals after implantations of ¹¹¹In and ^{111m}Cd. The INTC notes that the collaboration with an experienced group in growing high-quality single crystals and preparing reproducible poled states is crucial for the success of this research. The Committee appreciates the complementary information provided in the presentation which clarified key aspects and addressed questions effectively. While some concerns remain about the measurements, the Committee finds the physics interesting and supports this high-risk experiment.

The INTC recommends the approval of 12 shifts by the Research Board.

INTC-P-704 Implantation of ²²⁶Ra for the measurement of its absolute nuclear charge radius (6 shifts requested)

The proposal aims to conduct offline implantation of ²²⁶Ra to manufacture a target for muonic atom spectroscopy experiments at PSI. These experiments intend to measure its nuclear charge radius in the context of future studies on atomic parity violation. The INTC finds the measurement of ²²⁶Ra's absolute radius at PSI scientifically relevant, but the production of the required target at CERN has many practical concerns which raise questions concerning the feasibility. While the TAC suggested MEDICIS as an alternative, the proponents argue against it due to contamination risks. However, these risks also exist for implantations on GLM and, for the feasibility to be established, a comprehensive risk assessment would be necessary to evaluate their impact on other users of the facility. Additionally, the proposal would require

significant efforts by the technical teams and these would need to be assessed carefully by the SY Department. Finally, it remains unclear to what extent alternative solutions have been explored beyond ISOLDE to manufacture the material for the PSI experiment.

The INTC recommends the approval of 0 shifts by the Research Board.

INTC-P-705 Measurement of the neutron-induced fission cross section of ^{239}Pu at n_TOF (4.5×10^{18} protons requested)

The proposal aims to determine the neutron-induced fission of ^{239}Pu with high accuracy, focusing particularly on energy levels up to 1 GeV, where previous measurements have shown disagreement. Using the tilted PPAC method, the experiment aims to achieve a precision level of less than 2%. While the INTC acknowledges the significance of precise fission cross-section data for diverse applications, it notes the challenge of adding novel insights after six decades of measurements. However, the Committee believes that the proponents have found an approach capable of contributing new information. Additionally, it appreciates the thoroughness of the technical details provided, as they are crucial in establishing confidence that the required precision can indeed be attained.

The INTC recommends the approval of 4.5×10^{18} protons by the Research Board.

INTC-P-706 Employing ROC to explore astrophysics milestones: nuclear structure of the N=Z nucleus ^{76}Sr (9 shifts requested)

The proposal aims to measure the charge radius of the neutron-deficient ^{76}Sr isotope using the recently developed ROC technique at COLLAPS, which allows for measurements on low-yield isotopes. ^{76}Sr is a potential waiting point in the rp-process and the heaviest N=Z nucleus available at ISOLDE. Additionally, the study aims to test the feasibility of mass measurements of ^{75}Sr at ISOLTRAP. While the INTC recognises the nuclear-structure motivation around N=40, it finds that the proposal and presentation lack information on how the data will constrain uncertainties in astrophysics modelling. Furthermore, the Committee does not fully understand how the yield information discovered after the proposal submission affects the requested shifts and beam development. Therefore, the INTC requests a letter of clarification addressing the following:

1. Clarify the yield information and the shift request. Explain the necessity of beam development and laser scheme development.
2. Provide additional details on the theoretical support for interpreting the measured radius of ^{76}Sr .
3. Elaborate on the astrophysics motivation, including theoretical calculations. How significant is the mass of ^{75}Sr for modelling the rp-process?

The INTC recommends the submission of a letter of clarification.

INTC-P-707

This number was automatically generated when a document unrelated to the INTC was submitted. It has since been removed from CDS. A discussion followed regarding the possibility of restricting access for submitting documents to the INTC, as detailed in the AOB section.

INTC-P-708 Coulomb Excitation and RDDS measurement of a Triaxial Superdeformed Band in ^{162}Yb (15 shifts requested)

The proposal aims to investigate the nature of the band based on the second 0^+ state in ^{162}Yb , initially believed to be a vibrational β band, but recent theoretical investigations potentially indicate a triaxially-deformed state. Employing Coulomb excitation, Recoil Distance Doppler Shift (RDDS) methods, and β -decay experiments, the study aims to measure matrix elements and state lifetimes to distinguish between vibrational and superdeformed configurations. In addition, decay experiments were proposed to measure the branching ratios, however, the yields of the required ^{162}Lu beam need to be verified (LOI268 has been approved, but awaits scheduling) therefore no shifts are allocated to that part of the request until its feasibility is confirmed. However, the INTC believes that clarifying the nature of the second 0^+ state justifies the requested 15 shifts for ^{162}Yb at Miniball. It notes the importance of this research in addressing ongoing discussions in the scientific community and recommends its acceptance.

The INTC recommends the approval of 15 shifts by the Research Board.

Discussion and recommendations for received Addenda

INTC-P-569-ADD-1 Measurement of $^{92,97,98,100}\text{Mo}(n,\gamma)$ relevant to Astrophysics and Nuclear Technology (1×10^{19} protons requested)

The proposal aims to measure the neutron capture cross sections for the isotopes $^{92,97,98,100}\text{Mo}$, continuing previous successful measurements of stable Mo isotopes. The cross sections of these isotopes are crucial for nuclear astrophysics, given their production in various processes, and $^{98}\text{Mo}(n,\gamma)$ is particularly relevant for producing the medical isotope $^{99\text{m}}\text{Tc}$. The INTC appreciates the inclusion of preliminary results from previous measurements in the presentation, an aspect that was missing from the proposal, as this helps demonstrate feasibility. The Committee acknowledges the proposal's strong scientific motivation, which encompasses both fundamental scientific understanding and practical applications.

The INTC recommends the approval of 1×10^{19} protons by the Research Board.

Discussion and recommendations for received Letters of Intent

INTC-I-273 Commissioning of a new sTED setup with 27 modules for capture measurements at CERN n_TOF EAR2 (7×10^{17} protons requested)

The Letter of Intent involves commissioning a new setup of 27 small C6D6 detectors arranged in three rings, replacing the current setup of 9 detectors in a single ring, to increase efficiency despite more scattering. This new sTED setup will be tested using ^{197}Au targets, along with C and Pb samples and an empty target position as reference, using new photomultipliers capable of high counting rates. Four different experimental conditions will be evaluated to ensure precise characterisation. The INTC finds the Letter of Intent interesting and considers the request for protons reasonable.

The INTC recommends the approval of 7×10^{17} protons by the Research Board.

INTC-I-274 Response of stilbene scintillator to (n,n) and (n,n') reaction channel in TOF experiments (6x10¹⁷ protons requested)

The proposal aims to assess an array of 8 stilbene scintillators in an n+¹²C experiment at EAR1 to determine their suitability for (n,n) and (n,n') measurements. Following previous tests conducted at EAR2, the proposal seeks to address limitations encountered with neutron beams of low energy, which resulted in compressed time-of-flight intervals and pile-up issues. With the addition of 4 new detectors, the experiment aims to explore neutron energies ranging from 1 to 10 MeV. The INTC finds the LOI relevant, noting its potential to extend the range of cross-section investigation at n_TOF.

The INTC recommends the approval of 6x10¹⁷ protons by the Research Board.

INTC-I-275 Assessing the parity inversion in N = 7 isotones via ⁹Li(d, p)¹⁰Li (Development of ⁹Li beams) (4 shifts requested)

The Letter of Intent requests beam development for high intensity ⁹Li beams, aiming to facilitate the study of ¹⁰Li and ¹¹Li through (d,p) and (t,p) reactions. This initiative is particularly significant for understanding ¹¹Li, a benchmark for Borromean halo nuclei, and assessing pairing in its continuum. The lack of information on ¹⁰Li spectra hinders our understanding of ¹¹Li, making a well-produced ⁹Li beam crucial for advancing research in this area. The INTC recognizes the scientific significance of ⁹Li for multiple experiments aiming to unravel the structure of neutron-rich Li isotopes and encourages the ISOLDE technical teams to develop this highly interesting beam for the nuclear physics community.

The INTC recommends the approval of 4 shifts by the Research Board.

INTC-I-276 Data acquisition and Python processing using CAEN Digitizer DT5730S for Perturbed Angular Correlation Spectroscopy: the PACIFIC² route (5 shifts requested)

The Letter of Intent aims to evaluate the performance of an upgraded data processing system for γ - γ Perturbed Angular Correlation (PAC) experiments at both low and high temperatures, transitioning from outdated analog to modern digital systems. This upgrade includes new hardware and the PACIFIC² suite of Python tools for streamlined data handling and analysis. The new system promises to offer improved compactness, reliability and flexibility. The INTC finds this proposal promising and approves the request, noting that the shifts can be efficiently scheduled alongside already approved proposals.

The INTC recommends the approval of 5 shifts by the Research Board.

INTC-I-277 Fission Fragment Identification Arm Detector Test to Measure ²³⁵U Fission Fragments at n_TOF EAR2 (7x10¹⁷ protons requested)

The Letter of Intent aims to test a fission fragment identification (FiFi) detector at n_TOF to evaluate the effects of flight path on mass resolution and the maximum accessible neutron energies. This setup, previously used successfully at other facilities like ILL, will use a ²³⁵U target with a thick backing to measure the time of flight (TOF) and total energy of one of the fission fragments. The test will compare simulation results with actual measurements to assess the uncertainty of mass measurements, focusing on the critical velocity measurement, which

depends on the distance between the two TOF detectors. The INTC believes that the measurements are likely feasible and beneficial for future use at n_TOF.

The INTC recommends the approval of 7×10^{17} protons by the Research Board.

INTC-I-278 In-source laser spectroscopy of neutron-deficient lutetium and holmium isotopes, towards the proton emitters. (8 shifts requested)

The Letter of Intent (LoI) aims to measure yields for neutron-deficient lutetium ($Z=71$) and holmium ($Z=67$) isotopes using the Laser Ion Source Trap (LIST), with the ultimate goal of conducting in-source laser spectroscopy via the Perpendicularly Illuminated-Laser Ion Source and Trap (PI-LIST). The INTC finds studying the nuclear structure of Lu ($Z=71$) and Ho ($Z=67$) a compelling physics case since in this region the shapes are rapidly changing and proton emitters appear. Looking ahead to a follow-up proposal, the Committee expresses interest in understanding the current status and future prospects of theory in this area and seeks clarification on the observables that can be measured with laser spectroscopy when moving beyond the proton drip line, including whether the concept of a charge radius makes sense for an unbound system.

The INTC recommends the approval of 8 shifts by the Research Board.

INTC-I-279 Testing the mass separation capabilities of the new ISOLDE isobar separator (6 shifts requested)

The Letter of Intent (LoI) aims to measure the mass resolving power of the current MIRACLS MR-TOF, with the goal of benchmarking ion-optical simulations. These simulations suggest that the current length of the pulsed drift tube is not optimized for mass resolving power, a crucial factor for the PUMA experiment planning to utilize a modified version of this MR-TOF. Initially, concerns were raised regarding the need for radioactive isotopes for this test. However, clarification from the proponents highlighted practical limitations of the available electron impact ion source and the minimal use of protons, potentially enabling parasitic operation alongside another run. Following these clarifications, the INTC generally supports the proposal.

The INTC recommends the approval of 6 shifts by the Research Board.

Discussion and recommendations for received Letters of Clarification

INTC-CLL-058 Single-particle aspects of high-J sd-fp shell mirror energy differences (MEDs) (9 shifts requested)

The submitted Letter of Clarification responds to the INTC's recommendation from November 2023 regarding proposal IS670, which aims to investigate high-J mirror energy differences (MEDs) through a (d,p) reaction on ^{38}K . The goal is to understand the sudden change in MEDs due to the single-particle nature of these states. The Proponents were asked to: i) present theoretical calculations based on a consistent approach to state energies and spectroscopic strengths, ii) clarify the role of the $d_{5/2}$ orbital, iii) elaborate on MEDs for higher spin states, and iv) elucidate the potential impact of the anticipated results on understanding MED

behaviour as a function of spin and mass. While most questions were satisfactorily answered, not all theoretical concerns were fully addressed. Nevertheless, the Committee believes the proposal could elucidate the drastic increase in MED observed at the $13/2^-$ state in the $T = 1/2$, $A = 39$ mirror system and enhance understanding of MEDs in the sd shell.

The INTC recommends the approval of 9 shifts by the Research Board.

AOB

Firstly, the INTC extended sincere gratitude to departing member S. Lenzi for her valuable contributions and dedication.

In the context of the missing INTC-P-707 document, the chair of the INTC noted that two documents were submitted to the INTC that were deemed irrelevant and potentially spam. It was clarified that, currently, anyone can submit documents to the INTC, but that these documents were swiftly removed from CDS upon detection. It was acknowledged that this was the first occurrence, and as long as such incidents remain infrequent, the current approach is manageable. However, if the frequency increases, consideration will be given to implementing a system where documents require approval before submission.

Subsequently, there was a proposal to narrow the topical range of some upcoming INTC meetings before LS3, with the exact details to be discussed with the ISCC and n_TOF community. Additionally, it was suggested that the November 2025 and/or February 2026 meetings should not be cancelled but could be used to review Run 3, focusing on the quality of the obtained data.

Furthermore, there is interest in clarifying guidelines for the INTC. For example, it was suggested that proponents of proposals should evidence collaboration with theoretical teams when it is challenging to extract physics information from experimental data by adding them to the list of authors. Additionally, it was suggested that shifts without protons should be counted if the facility is blocked from conducting other physics during time whilst those shifts are delivered.

Minutes taken by Hanne Heylen.