



*Draft Minutes of the 88th Meeting of the ISOLDE Collaboration Committee  
held on June 23rd 2020*

Present: D. Doherty, K. Flanagan, L. Fraile, H. Fynbo, G. Georgiev, K. Johnston, N. Marginean, A. Nannini, G. Neyens, J. Pakarinen, M. Pfützner, J.A. Rodriguez, L. Schweikhard, N. Severijns, S. Siem, E. Siesling, M. Venhart, J. Vollaire

Invited: S. Malbrunot

Absent: J. Cederkall, S. Gilardoni, D. Naidoo

The meeting, held via Zoom due to Covid-19 travel restrictions, starts at 09:30 h

**1. Introductory remarks**

The ISCC chairperson, K. Flanagan, opens the meeting.

**2. Approval of the Minutes of the last meeting of February 20th, 2020**

The minutes from the previous meeting are approved.

**3. Impact of COVID on 2020-2021 Low-energy ISOLDE activities – *J. Vollaire***

Due to the COVID-19 pandemic, the whole of CERN was put into “safe mode” in mid-March and all activities were suspended. J. Vollaire tells the committee that, while the period of enforced teleworking had been productive for the majority of the technical team, it had however been less efficient and not always relevant for a few colleagues involved mainly in hands-on work. Focus had been on training, documentation and technical specification for the tendering process including the new target vessel contract for the next 5 years and the purchase of glove boxes to equip the future nano-lab. Close social contact was maintained with younger colleagues living alone in France and special attention was given to their “well-being” due to the strict “stay-at-home” order in place. The committee is informed that all standing meetings had been maintained during this period and additional ones scheduled which allowed an excellent exchange of information and collaboration with all ISOLDE stakeholders to continue. J. Vollaire stressed that this had been extremely important when plans to resume activities on site were discussed as the priorities and updated schedule were first internally agreed within the ISOLDE teams before being communicated to the line management of the departments concerned. This approach had allowed the needs of the ISOLDE facility and the plan for the rest of LS2 to be clearly presented in CERN wide committees (EACM, IEFC, LS2C...) and thanks to this collaborative strategy the ISOLDE proposal was endorsed and the corresponding resources from the support groups allocated.

The CERN restart plan is presented which shows that about 600 persons were accessing the site during the “Safe-mode” period and that from the 18th May an increase of approximately 500 people per week were allowed on site. Priority was given to LS2 activities, accelerator and detector upgrades and urgent building work. It is hoped that this gradual increase will allow unlimited access to the site

by mid-September. J. Vollaire explains that for EN-STI-RBS the priority will be frontend production along with workshop activities, target production, MEDICIS operation and ensuring that students working on target development can perform the required experiments before the end of their contract. It is hoped that by the end of June 10 out of the 20 people in the section will be on site at any one time. However, those with COVID-19 symptoms or vulnerabilities are not allowed to work on site. At present, CERN insists that anyone who has COVID-19 related symptoms or lives with someone who has symptoms must stay at home for two weeks even if they test negative for the virus. It is noted that this approach is an additional constraint that could negatively impact the progress of activities which require the presence of personnel on site.

The status of frontend production is briefly summarised and the planning for production of frontends 10 and 11, which was updated on 15<sup>th</sup> June, is presented. The successful vacuum testing of FE10 has now taken place and activities, such as alignment and cabling, are underway inside the GPS Faraday cage in preparation for the installation of the frontend. The mechanical assembly of FE11 is ongoing and stable beam testing at offline2 is planned for August although the length of the testing period will be reviewed to see if it can be reduced from what was originally planned. A derogation due to the exceptional circumstances of the COVID-19 situation was successfully requested to hire J. Cruikshank, who has a leading role in the frontends production, as a TEMP for 6 months after the end of his fellowship contract on the 31<sup>st</sup> July.

J. Vollaire presents the status of the new nano-laboratory construction and highlights the advancement during the period spanning from mid-March to mid-June. Construction was able to resume after only a couple of weeks interruption following recommendations for civil engineering work in Switzerland and with the approval of the CERN management. The layout of the extension shows the new laboratory for UCx pills production, hosting the carburation and pump stands as well as an area dedicated to the storage of radioactive material and waste. The new area for UCx pill production will allow the safe handling of uranium oxide and carbon powders in the micro and nano range size and the laboratory has provision for the integration of additional equipment to allow new production processes to be developed in the future. As the nuclear ventilation for the extension will be connected to that of the existing building during the first semester of 2021 requiring a stop all activities inside building 179, the production of targets for physics in 2021 will have to take place this year. This pre-production has started but discussions about the exact physics programme for 2021 and hence the required targets are still ongoing.

The committee is informed of the tasks that still need to be completed in order to have the new fast tape station ready for use in 2021. It has been decided to put the installation of the spare tape station at GLM on hold until the finalisation of the work on the operational tape station. J. Vollaire then presents an overview of proposed target and ion source development for 2020/ 2021 and informs the committee that Y. Garcia (Mechatronics FTEC - Facility support) and E. Reis (Material Science FTEC - Target development) as well as M. Au (Fellow - Molecular beams) will be joining the TISD team. Finally, the committee is given a brief status report from MEDICIS which restarted operation at the end of May and should soon start operating with radioactive beams, using externally provided radioactive samples.

#### **4. Impact of COVID on 2020-2021 HIE-ISOLDE activities & Machine Studies – *E. Siesling***

The committee is informed that in May the overall REX/HIE ISOLDE installation planning was reviewed in the frame of the CERN wide prioritisation of activities and allocation of resources taking into account the COVID-19 delay and measures for a progressive re-start from 18<sup>th</sup> May. The aim for 2020 was to maintain the crucial hardware tests, the installation of the new EBIS gun and the HIE ISOLDE cool down as well as the cryomodule recommissioning and the stable beam commissioning but the extensive machine studies would have to be abandoned. In order to achieve this aim by the end of the year, two remaining LS2 tasks, the installation of 3 diagnostic boxes and the cryogenic

installation work on the HIE SC linac cryomodules, were identified as resource critical. Hence, a request was made to the LS2C and the IEFC to resume ISOLDE LS2 activities from 18<sup>th</sup> May and for the approval of resource allocation to achieve the tasks identified as resource critical. The justification for this request was that testing of the repaired cryomodule 4 and the recommissioning of the facility this year is vital for physics in 2021. This request was approved and all REX/HIE ISOLDE LS2 tasks are now on track with regard to the new COVID revised planning. E.Siesling then summarises the work completed and that still to be done with regard to the EBIS gun, which is due to be ready by mid-September to provide beam for REX/HIE ISOLDE beam commissioning, as well as the diagnostic boxes and the IHS and 9 Gap cooling circuits, which should be ready for RF tests in July and the HIE ISOLDE cryo cool down in August.

With the revised planning, the priority in 2020 is the full recommissioning of the post accelerator (REX and HIE ISOLDE) and of the low energy beam lines (once beam from the new FE10 in GPS is available). The remaining beam time will be allocated to the execution of a reduced (as compared to the original plan before the laboratory closure) machine studies program and to the extent possible, to the delivery of stable beams to test the experimental stations. In 2021, the HRS separator will be operational and the associated beam line components will be recommissioned. Once REX and HIE ISOLDE are recommissioned (after cool-down), the machine studies program will continue until the proton beam becomes available. Low energy physics is due to start at the end of June 2021 (instead of the end of April) while the start of HIE-ISOLDE physics is now scheduled for the end of July next year (instead of mid-May). This means that the overall impact of the COVID-19 period will be a delay of approximately 10 weeks to REX/HIE ISOLDE planning.

E. Siesling explains that the possibility of keeping the cryo plant running over Christmas is being examined as this would reduce required resources and provide time for machine studies as well as to send stable or long-lived isotopes to HIE ISOLDE experimental stations for testing new equipment. However, there is a legal issue obliging the stop of cooling water plants for legionella checks and maintenance that would have to be overcome. The committee agrees that the 130kCHF that would have been used for the startup in 2020, as planned before the COVID-19 pandemic could be put towards the possible running over the Christmas period.

The committee thanks all the technical teams and departments for their team work and dedication which has allowed the facility to be in the present situation which will allow physics to take place next year.

## **5. News from the coordinator – *K. Johnston***

The committee is told that from mid-March to 18<sup>th</sup> May, when CERN was in “safe” mode due to COVID-19, access to the CERN site was only allowed for machine checks and some exceptions such as the gathering of PPE to be donated to the CERN fire brigade that assisted the ambulance service in the Pays de Gex during this period. K. Johnston explains that, since the beginning of Phase 1 of the CERN restart on 18<sup>th</sup> May, activities have gradually been resuming but still only a limited number of people are allowed to access the site. Everyone entering the CERN site now has to have completed the COVID-19 online training found via

<https://lms.cern.ch/ekp/servlet/ekp?CID=EKP000043435&TX=FORMAT1&BACKTOCATALOG=Y&DECORATEPAGE=N> . Access is managed using a “white list” approved by the EP-SME group leader and, at present, there are about 30 people on the list from ISOLDE EP. However, the maximum number of ISOLDE EP personnel allowed on site at any one time in week 26 is still only 12. Priority access is being given to groups who have deadlines (ISOLTRAP and MIRACLS have requested stable beam this year) and those with PhD students. An online weekly schedule describes who will be on site when and a logbook tracks who actually came on site. Resumption of experiment setup work requires a risk assessment of the activity with respect to COVID-19 contamination and any additional risks caused by the present situation. CERN has strict rules regarding the wearing of PPE which is

bought using a central CERN budget and distributed weekly to the relevant groups. Teleworking from home where possible is still the preferred option until September and for anyone coming to work in their offices single office use is highly recommended. K. Johnston comments that if all the COVID-19 regulations stay in place, running experiments in the future will not be straight forward.

The current proposition for the restructuring of the GLM area, due to the strong request from the Swiss authorities to reclassify the area as C-class, is presented. The plan still has to be presented to the technical groups but it is hoped the restructuring work will begin in September. Users will no longer be allowed to access the area while running experiments, so control will have to take place remotely. Access under the stairs will no longer be possible and the alternative route via LA1 may be affected by the new MIRACLS plan to initially use LA1. MIRACLS still plans to move to the old NICOLE area at some point in the future; the removal of the NICOLE setup has been delayed due to the COVID-19 situation. The switchyard and REXTRAP area will still be accessible via LA2 but this becomes difficult when COLLAPS is running. E. Siesling confirms that the eventual access route will be well marked to ensure access at all times for machine operators and service groups.

Regarding open access, which is mandatory for all publications which have received EU support, K. Johnston informs the committee that CERN has agreements with certain journals such as Nature, Nature Physics, PRL and PRC for those publications that have at least one CERN author. Since May 2020, there is a new open access agreement with the Institute of Physics Publishing, which includes the Journal of Physics G, that allows for any paper from a collaboration or experiment hosted at CERN to be published as open access. The committee is reminded that all publications from ISOLDE experiments must be uploaded to the CERN Document Server (CDS) which is sufficient as green open access for the EU ENSAR2 project.

K. Johnston informs the committee that the INTC has completed its review of outstanding proposals and is now accepting new proposals. This month's INTC meeting will focus on low energy physics while both low and high energy will be considered at the meeting in November. The current backlog of shifts is presented (35 experiments have a total of 490 outstanding shifts) and the committee is told that 22 proposals with a total of 378 requested shifts will be examined at tomorrow's INTC meeting.

After informing the committee that all safety training at CERN is currently suspended due to the COVID-19 situation, K. Johnston explains that changes to the training required for ISOLDE Users are expected next year and he hopes to be able to give an update at the ISCC meeting in November. As the hands-on training courses required for ISOLDE access have not often been available during LS2, the ISOLDE Physics Coordinator was given special permission to train occasional users but this cannot be seen as a long term option.

The committee is told that all ISOLDE experiments are currently refreshing their safety files due to a revised beam permit required after LS2. Experiments will have to have their safety file approved before they can receive beam.

Some publications and articles from experiments at ISOLDE that have been published during LS2 are presented and the committee is informed that there is a new outreach page on the ISOLDE website <https://isolde.web.cern.ch/outreach> .

## **6. News from the ISOLDE group and Collaboration matters – *G. Neyens***

The present manpower situation in the ISOLDE Physics Group is then summarised by G. Neyens.

- **Scientific Associates:** Robert Berger (5 months, postponed until spring 2021), Giacomo de Angelis (July – December 2020), Ismael Martel (6 months, October 2020 – March 2021). Deadline for new applications: 11th September 2020.

- **Corresponding Associate:** Mikael Reponen (March – June 2020, extended until August 31<sup>st</sup> 2020). Deadline for new applications: 11th September 2020.
- **Staff Members:** Stephan Malbrunot-Ettenbauer (ERC MIRACLS) (February 2017 to January 2022), Karl Johnston (Physics Coordinator) (October 2015 to September 2022), Gerda Neyens (Physics Group Leader) (June 2017 to June 2021), Magdalena Kowalska (CERN staff member)(January 2020 - ).
- **User:** Jenny Weterings (User Support) (2002- )
- **Research Fellows:** Hanne Heylen – COLLAPS/MIRACLS (September 2017 to August 2020), Maxim Mougeot – ISOLTRAP (Sept 19 – August 2021), Razvan Lica – IDS (June 2020 – May 2022), Liss Vasquez Rodriquez - COLLAPS (Oct. 2020 – Sept. 2022). Deadline for new applications: 1<sup>st</sup> September 2020.
- **Applied Fellows:** Simon Sels – MIRACLS (April 2018 to August 2020), Dinko Atanasov – WISArD & Low Energy Experiments (April 2019 – March 2021), Markus Vilen – MR-ToF for ISOLDE and MIRACLS (October 2019 to September 2021), Bruno Olaizola – HIE-ISOLDE (September 2020 – August 2022). Deadline for new applications is the same as for Research Fellows, 1<sup>st</sup> September 2020.
- **Doctoral Students:** Jonas Karthein (CERN via Gentner Doctoral Program) (November 2017 to October 2020), Varvara Lagaki (CERN-MIRACLS) (September 2017 to August 2020), Simon Lechner (CERN-MIRACLS) (September 2017 to August 2020), Jared Croese (CERN- EP-SME) (February 2018 to January 2021), Peter Plattner (CERN via Austrian Doctoral Program) (August 2018 to July 2021), Katarzyna Maria Dziubinska-Kuhn (CERN-ERC Betadrop) (October 2018 to September 2021), Karolina Kulesz (CERN-ERC Betadrop) (October 2018 to September 2021), Lukas Nies (CERN via Gentner Doctoral Program) (November 2019 to October 2022), Franziska Maier (CERN-MIRACLS via Gentner Doctoral Program) (February 2020 – January 2023), Michail Atanasakis (CRIS) (Sept. 2020 – Aug. 2023).

G. Neyens informs the committee that, due to the Covid-19 crisis, CERN PhD students can have their contracts extended for up to 6 months as long as funding is available. This is the case for V. Lagaki and S. Lechner at MIRACLS and for J. Croese at VITO.

The new rules for CERN Team accounts, now known as Third Party accounts, are presented <https://cds.cern.ch/record/2137994/files/FinancialAndAdminProvisionsForTeamAccounts.pdf>. There are 2 types of Third Party accounts. The first is a Collaboration account opened by a collaboration for construction, maintenance and operation of an experimental set-up or a facility at CERN, such as ISOLDE. The Account Manager is a CERN Member of Personnel, collaboration members pay a yearly contribution into the account, an MoU is signed in which a Financial plan is mentioned (contributions and planned spendings) and money is used under supervision of a collaboration steering committee. The second type of account is a Visiting Research Team Account opened by an individual Institution or Research team. The Account Manager is a user and CERN pre-pays the expenses made on the account, sending monthly bills to the institution owning the account. Rules on what can be paid for using each of the 2 types of Third Party account is then summarised.

G. Neyens informs the committee that new rules stating that subsistence payments can be made by Third Party accounts to a person for a maximum of 8 years from January 2020, will affect how the ISOLDE Collaboration funds administrative support after December 2027; this matter should be followed up by the next ISOLDE Group leader.

The committee is informed that the 2019 collaboration fee from Spain is still outstanding, while Poland was only able to pay 39.5kCHF last year instead of the required 60kCHF. Fees for 2020 have

already been received from CERN, Finland, Germany, Romania, South Africa and Slovakia. The Czech Technical University has also paid its institute membership fee for this year. G. Neyens goes on to inform the committee that the HIE-ISOLDE repayments (540kCHF) have already been made for 2020.

Regarding the removal of the NICOLE setup, the committee is told that the visit to CERN by former NICOLE members to undertake this task had been postponed due to the Covid-19 pandemic but it is hoped to complete the removal by the end of the year.

G. Neyens announces that this year's ISOLDE Workshop and Users meeting will be held 25-27 November and it will be preceded by the 2<sup>nd</sup> EPIC Workshop 24-25 November. It is yet to be decided if these events will be held on-site or virtually.

### **7. Modifications to the Annexes in the MoU – G. Neyens**

Changes to the annexes of the ISOLDE MoU requested since the last meeting are presented. The update of the Norwegian funding source in annex 2 and the addition of the MR-ToF MS to both annexes 6 and 8 are approved by the committee. S. Siem requests that CERN sends a new copy of the MoU to the dean of the University of Oslo so that he can sign the document; approval of fee payment from funds now administered by the institute should then follow. Discussions are ongoing about changes to the annexes requested by France; a meeting will be arranged by G. Georgiev and G. Neyens to solve this issue before the next ISCC meeting.

### **8. Status and timing of MIRACLS installation at LA2 – S. Malbrunot**

The committee is briefly reminded of the MIRACLS project which sets out to provide a novel approach to collinear laser spectroscopy (CLS) with an ion trap to give a long observation time and a 30keV beam to produce a high resolution. S. Malbrunot presents results from the MIRACLS proof of principle experiment that was carried out by adapting an existing (low-energy) MR-ToF for the purpose of CLS. The experiment demonstrated the potential of the technique and validated simulations carried out for the 30keV device while also allowing an estimate of experimental sensitivity to be made.

The plan for the MIRACLS 30keV setup and its integration at RCX10 are briefly presented. This location for the setup already presented several issues such as the location of the laser laboratory, ion beam emittance, crane access and the fact that the NICOLE setup has not yet been removed. Due to the COVID-19 pandemic, 4 months of the project have already been lost and many developments are still on hold. Hence, S. Malbrunot proposes that a compact MIRACLS be installed at LA2 for use in 2021 and 2022. This location is currently free, has crane access and the emittance was measured at LA2 in 2019. The proximity of the COLLAPS laser lab would also be an advantage. The compact setup would start with a room temperature Paul trap, reuse components of the proof of principle experiment and use the best possible MR-ToF available. How the setup could be integrated at LA2 is presented and the committee is told that discussions with the technical experts about the integration are ongoing. The compact MIRACLS setup would be similar to the initial MIRACLS design but with reduced complexity and capabilities. It would, however, address the ERC science goals within the funding period and allow commissioning of the 30keV MR-ToF device for fast beam purification. Beam optics simulations have shown that, while not being optimal, they would allow first physics to take place.

S. Malbrunot then summarises the resources that would be required for the compact MIRACLS setup to be installed at LA2. Infrastructure requirements include laser-beam transport, power, pressurised air and cooling water as well as the removal/relocation of concrete blocks and cable trays. Additional laboratory space will also be needed for clean assembly of apparatus and for data acquisition. The beam requirements for the compact MIRACLS setup would include stable beam in autumn 2020 for

emittance measurements and at the end of 2020 and early 2021 to establish ion-beam transfer; a possible timeline for the installation/commissioning of the compact setup is presented. J.A. Rodriguez states that stable beam would not be available before October and would first be required for ISOLDE commissioning before it could be supplied to LA2 so the compact MIRACLS planning would have to be adjusted accordingly. Other periods of stable beam would have to be carefully planned around other activities and conditions such as the commissioning of the frontends in June 2021 and the fact that there will be no cooling water available in January 2021.

The committee is told that it is still planned to install the full MIRACLS at RCX10. It is hoped that experiments with radioactive molecules utilising a cryogenic Paul trap will take place in 2022, and that beam could be delivered by the full MIRACLS setup to PUMA and other experiments in 2023. However, this will fall outside the period of the ERC grant so new funding applications will be required.

A discussion takes place. The committee agrees that use of the ISOLDE 3D integration model will be very important to assess exactly how LA2 will be affected by this proposal and that S. Malbrunot should collaborate closely with the ISOLDE Physics Coordinator and the technical teams in order to optimise integration, in particular the access issue. It is stated that this new MIRACLS plan is important, not only for the MIRACLS project, but for ISOLDE as a whole. It is also essential that the associated ERC grant produces results. Hence, the committee agrees to support the request to install compact MIRACLS at LA2.

### **9. News from EPIC funding opportunities in partner countries – *K. Flanagan***

The committee is told that the STFC in the UK has set up an Infrastructure Advisory Committee (IAC) which will consider infrastructure projects for future funding when it becomes available. This committee requested an updated intension to request funds for the EPIC project which had to include information about participation of other countries as well as their funding possibilities for the project. K. Flanagan added that there might also be the possibility of smaller funding calls in the UK to go towards preliminary EPIC activities.

Committee members are informed that there is an opportunity linked to the University of Uppsala, Sweden for a project linked to developments at ISOLDE. Two projects (pulsing of the central line and the development of a buncher and chopper) will be presented to the university and they will then decide with which one to move forward.

G. Neyens encourages committee members to identify such funding opportunities in their countries. ISOLDE management and technical teams are available to discuss any opportunities when required.

L. Fraile states that a call for infrastructure funding is expected soon in Spain and G. Georgiev informs the committee that, at a recent general meeting of the new IJC Laboratory in France where ISOLDE was presented, a discussion occurred about the possibility of having French engineers involved in development for the EPIC project. K. Flanagan explains that, as preliminary tasks for EPIC are largely for engineers, providing engineering manpower would be a good way to move forward with the project. In response, J.A. Rodriguez states that CERN is also making efforts regarding engineering manpower for the project.

### **10. A.O.B**

- J.A. Rodriguez requests clarification on how the silicon telescope project, led by O. Tengblad to make beam composition measurements, will proceed. The first device is assembled but not yet fully installed. The idea was to install copies of the device at other beamlines but only when it has been proved that the first one works successfully. G. Neyens will contact O. Tengblad in order to decide how to proceed with the project.

- J. Pakarinen enquires if it would be possible to install ISOLDE's own water cooling system which could be used when the present CERN system is shut down for maintenance and repairs and so avoid enforced warm up of the facility each year. E. Siesling will look into this possibility.
- The ISOLDE Group leader position is now open for applications. ISCC members are encouraged to inform suitable candidates.

### **11. Dates of the next meeting**

The date of the last ISCC meeting in 2020 is Thursday 5<sup>th</sup> November.

Meeting ends at 13:30.

N.B. The overheads of the above presentations can be found via <https://indico.cern.ch/event/918808/>.