



ISOLDE Collaboration Committee Discussion of Potential Investments 21st June 2024

Sean J Freeman

Set the Scene

- Improvements programme to LS3 - what we have and what still needs doing.
- Part of response to request to ISCC for “in-year” investments.
- Consider ISCC-funded projects given HIE-ISOLDE payments cease.

Held off with major collaboration spend until know outcome of LS3 improvements requests.
Could help with those currently still pending - bearing in mind “infrastructure” categories.
Or new projects funded by collaboration.

Decision Timeline for the ISOLDE Improvement program

Consolidation and improvements up to and during LS3: 2 GeV, proton dumps, fire safety improvements, reliability of REX, maintaining the long-term performance of SC linac, review/cons target systems and low energy lines...

ISOLDE Mini-workshop on Consolidation and Improvement program (October 2022) ✓
To collect needs for consolidation and improvement of the facility based on physics needs and facility life-time

ISCC (November 2022) ✓
To state collaboration clear interest and support to the improvement program, in particular to the 2 GeV case

Strategy presentation to JAPW of integrated improvement program (December 2022) ✓
To define overall project to coordinate consolidation and improvement needs

RB (December 2022) ✓
To approve proposed roadmap for final approval

IEFC: IBDRS and 2 GeV technical implementation proposal (January 2022) ✓
To endorse technical solutions and timeline for implementation

INTC (February 2023) ✓
To re-state on physics program and interest on 2 GeV

RB (March 2023) ✓
Input from INTC on physics thanks to proposed improvement program and conclusions from IEFC about technical implementation

MTP 2023 ✓
ATS to put urgent items for MTP2023

Cost, Schedule and Scope Review (December 2023) ✓
To review project definition, risks, and resources

Extended directorate MTP2024 planning ✓
ATS to put forward elements of improvement program to ED for MTP2024 consideration

Council Approval MTP 2024

In parallel some items considered for consolidation budgets....

In a very difficult financial climate...



Good news (*MTP2024 subject to Council approval, due this week*):

MTP 2023 – FIRIA Implementation ventilation in primary areas – 3.060 MCHF.

MTP 2024 – Beam dump replacement, FLEXI building – 12.964 MCHF.

CONS – REX HLRF/LLRF consolidation – 2.180 MCHF.

CONS – Power converters on BTY to 2 GeV standard – 2.000 MCHF.

Around 20 MCHF

Postponed to MTP2025 / CONS decisions needed:

BTY magnets, vacuum, civil eng. – 1.440 MCHF.

EBIS Upgrade study– 750 kCHF.

Beam instrumentation spare consolidation – 100 kCHF.

Beam switching – 200 kCHF.

TRAP solenoid spare – 500 kCHF.

Spare HIE cryomodule – 1.5 MCHF.

RILIS infrastructure – 500 kCHF.

Around 5 MCHF:

2.5 MCHF put to CERN management for MTP2024.

Outcome of task force looking at cryo-management of HIE-ISOLDE.

Outcome of discussions concerning 9-gap resonator and logistics of consolidation of current s/c cavities.

?? MCHF

Spreadsheet of potential investments:

- Collected ideas from ISCC.
- Added LS3 projects – to update on status.
- Added other ideas and suggestions – including very long-term opportunities.
- Try to collect everything for convenience and will try to keep updated.

A few small presentations:

- Not meant to be exhaustive.
- A few things that ISCC might want to have more info – there might be others!
- EBIS Upgrades, ISRS and possible Hall extensions.

An important area is HIE-ISOLDE:

- Degradation of performance below design parameters.
- Test done to investigate cryo-management during cryo-plant maintenance awaiting detailed outcomes – but LN2 looks positive.
- SY management will draw up plans in next couple of months and requests packaged into MTP2025/consolidation/other sources – along with other still pending “LS3 improvements.
- Will ask for report to ISCC in November - or circulate via email sooner.

IMPORTANT – in the meantime, does ISCC give me some freedom to offer collaboration support to address any (reasonable) resource issues with HIE-ISOLDE – then confirm via email with ISCC?

For today:

Clearly only the start of an on-going discussion to establish (beyond the LS3 improvements):

- (i) priorities for investments from the Collaboration.
- (ii) develop a plan for LS4/LS5 improvements.
- (iii) long-term strategic directions on post-LHC timescales.

From the discussion today, hope to know more about what the ISCC thinks on:

- Short-term things we can just do – manpower willing – that we aren't already?
- Where is more information needed– we can arrange presentations or answer questions for the next meetings?
- Has anything been missed?
- Is anything on the list already not worth considering?
- Do we already see any priorities emerging?
- Any thoughts on the long term?
- An open discussion for ISCC to raise other opportunities, concerns, comments, suggestions.



ISOLDE Collaboration Committee Collaboration Matters 21st June 2024

Sean J Freeman



The plan for this section:

- Safety.
- Update on succession planning.
- Collaboration news.
- FRB and instrument MOU's.
- Termination of ICA's with Russia and Belarus.
- NuPECC LRP and ESPP Update.
- AGATA.
- Technician.

A couple of matter arisen in the last couple of days.

Where I need input from ISCC is in purple!

Safety:

Since the start of 2024, a tremendous amount of work has been done to support a safe working environment including:

- Thorough and effective cleaning and tidying in the ISOLDE Hall, removing a lot of equipment and material – rubbish and things not immediately needed for operations. Storage area secured, albeit temporarily.
- Comprehensive update of all current safety procedures at each instrument.
- Creation of new safety procedures for certain activities.
- Recently, money secured by EP-Safety from DG to support safety projects.
- Etc.

Grateful for the conscientious and meticulous efforts of a lot of people including – local instrument safety leads (usually CERN fellows or local/remote users), EP/BE safety teams, Physics and Technical Coordinators, OP machine supervisors, TSOs, etc.

Feel that formal thanks would be helpful – okay for me to write to the relevant people on behalf of ISCC?

Still to come – HSE Review to start soon...will share terms of reference/mandate with iSCC when released.

IMPORTANT to maintain continuous support for the safety culture at ISOLDE.

Section Leader/Collab Spokes Succession Planning:

- Following carefully the process distributed and agreed in February.
- Internal procedures for approval and advertisement done.
- Advertisement went live on 4th June with deadline of 6th September.
- Joakim and Magda volunteered for Search Committee – they can update on plans and activities now.

Advertise ~**1st June 2024** with deadline of **Friday 6th September**.

now until mid-July

Search Committee activities.

Monday 9th to Wednesday 18th September

ISCC members pass comments/suggestions for the shortlisting consideration – needs SmartRecruiter access.

Thursday 19th to Friday 27th September

SJF to pass on collated comments/suggestions to the Search Committee (made up of 2-4 members of the ISCC) who will do the shortlisting down to a maximum of three or four candidates.

Friday 4th October

Shortlisted candidates invited to interview by the ISCC.

By 1st November

Search Committee (facilitated by SJF) to confirm common set of questions to ask candidates at ISCC interview.

6th November

ISCC interviews to select the collaboration's chosen candidate. (This is planned as an in-person meeting).

Section Leader/Collab Spokes Succession Planning:

We plan to ask ISCC members who do not apply for the post (and who wish to) to provide the Search Committee with feedback on applications for the short-listing process done by the Search Committee.

This requires access granting to SmartRecruiters – which is non-trivial in terms of administrative work and HR have restricted manpower around the deadline in September.

If you want to give input to help the Search Committee with short listing and know you are not going to apply yourself, please let me know (kept in confidence) asap – I can ask HR arrange access to SmartRecruiters now. This will be via your CERN EMAIL. I will remind you by email next week. Might be tricky to add people close to the deadline – so best done now.

Collaboration News:

GREECE – unlikely to fulfil their MOU obligations.

BRAZIL IPEN – waiting for draft internally on institutional agreement.

CZECH IEAP-CTU – will expire after this year. *If they request another extension, would we agree?*

BULGARIA – Georgi to discuss.

Contributions for 2024:

- 15 national invoices and 1 institutional invoice sent May/June; three remaining will go later in the year on request.
- Payment already received from DE, UK, CERN, DK, FI, IT, NO, RO, ES, ZA, and CZ-IEAP-CTU.
- Only a short time since issuing so no concerns other than GR.

FRC:

- Seemed to go well – funders seemed happy in general.
- First time reporting on all TPA for ISOLDE – a lot of work (less next time) but perhaps useful for some instrument collaborations.
- Presented a narrative around the figures to explain *expenditure* in year against the important *consumable demands* and any *balances carried against any important liabilities*.

MOUs, TPAs and Institutional Accounts:

- Visiting Team Accounts for travel, car rental, COLA, CERN stores items for visiting researchers etc. that are not part of the deliverables of an institute to an experiment – goes across experiments.
- Collaboration Account (one or more institutions) covers costs associated with running an experiment/instrument, needs an MOU.
- CERN has expressed a desire to put new instrument MOUs as addenda to the main ISOLDE MOU – *any concerns?*

ICA Terminations:

Draft policy sent around in early June, to summarise the problem:

- All CERN collaborative relationships with Russian and Belarusian institutions will end this year, and possibly with JINR as well, via resolutions by CERN Council.
- We need to make sure that no one in the collaboration inadvertently appears to do something against the spirit of the CERN Council resolutions.
- There could be publications coming from experiments undertaken before the ICA terminations – we should flag these as “legacy” publications and satisfy the previous policies over institutions in those countries by using the suggested text in the address lists: e.g. *"Affiliated with an institute/laboratory covered by a cooperation agreement with CERN at the time of the experiment"*
- We are less rigorous with author lists than particle-physics experiments – people may not be listed on INTC proposal, may not come directly for the experiment, but still be on the paper concerning ISOLDE data via contributions to data analysis or theory.
- If this happened for experiments done after the termination of the ICA's, we would be viewed as breaking the spirit of the Council resolutions by including co-authors from Russian/Belarusian institutes.
- Draft policy is to flag legacy papers clearly, to avoid publishing papers with ISOLDE data from experiments performed after the termination of the ICAs with co-authors from Russian and Belarusian institutions, and to cease sharing of data with individuals at those institutes.
- N.B. Co-authors of those nationalities at institutes outside of Russia and Belarus are not subject to this.
- N.B. Publications not containing ISOLDE data are not our business – but may be subject to institutional or national rules.
- N.B. Assume that JINR will be added to Russia and Belarus, if that ICA is terminated.

Is the ISCC in agreement? If so, I will tidy the document and circulate to the collaboration.

NuPECC LRP:

SJF comments:

- *ISOLDE features prominently in the April draft of the LRP – 42 incidences of ISOLDE.*
- *To my taste, odd doc structure – not always a one-to-one mapping of chapter and exec summary recs.*
- *No detailed checks that things in science chapters can be delivered by facilities.*
- *“ISOLDE Upgrades” ill-defined in many incidences; ambiguity could be quite helpful!*
- *HIE-ISOLDE storage ring mentioned in the science chapters.*

Exec Summary Recommendations on Infrastructure:

- Nuclear physics opportunities at **CERN** constitute a world-leading research programme that has successfully diversified CERN’s scientific reach. The construction of **ALICE 3** as part of the **HL-LHC** plans is strongly supported. **New initiatives should be sought to maximise the scientific exploitation of ISOLDE, n_TOF and AD/ELENA.** As the roadmap for the post-LHC future of CERN is developed, a strategy should be prepared to secure future opportunities for continuing world-leading nuclear-physics programmes that are unique to CERN.
- Continuing **co-ordinated efforts in developing the ISOL facilities** in Europe, such as **ALTO, IGISOL, ISOLDE, SPES, and SPIRAL** will be key to maintaining their world-leading position in many areas of radioactive isotope science. Extending these efforts towards future facilities, such as **ISOL@MYRRHA, TATTOOS@PSI, and RIB@IFIN**, together with the development of common instrumentation, will secure the European leading position for radioisotope production, separation, and acceleration techniques, and create new avenues for the future and should therefore be actively pursued.

Exec Summary Recommendations on Nuclear Structure and Reaction Dynamics:

- Unique insights into Nuclear Structure and Reaction Dynamics can only be obtained via **the urgent completion** of the **FAIR** facility (including the Low-Energy-Branch), **SPIRAL2, SPES, ELI-NP, ISOL@MYRRHA, and ISOLDE upgrades**, as unique laboratories for studying reactions of very exotic nuclei, and for the exploration of the nuclear chart towards the driplines.
- The world leadership of Europe in the use of heavy ion storage rings - as key precision instruments for the study of nuclear masses and radii, nuclear resonances, isomers, reactions and fission - should be maintained **by the construction of future rings at FAIR and HIE-ISOLDE.**

Exec Summary Recommendations on Nuclear Astrophysics:

- Radioactive beam facilities in Europe (in particular the Super-FRS at FAIR, including the Low-Energy-Branch, **the upgrade of ISOLDE**, and SPIRAL2) will be essential for studies of exotic nuclei involved in various astrophysical processes. We strongly recommend the completion of the ongoing construction and upgrades at these European large-scale facilities.

Exec Summary Recommendations on Fundamental Symmetries:

- In general, **customised instrumentation and beam time availability should be guaranteed** for fundamental tests at RIB facilities like **ISOLDE, GANIL-SPIRAL2, and JYFL ACCLAB/IGISOL.**

...and in recommendations in individual chapters:

Recommendations on Nuclear Structure and Reaction Dynamics :

- *Heavy-ion storage rings* are key precision instruments for **future studies on nuclear masses and radii, reactions, nuclear resonances, isomers, and fission**. The world leadership of Europe in the use of heavy ion storage rings should be maintained by supporting experiments in the *existing rings of GSI/FAIR* and, in a larger time frame, *the construction of future rings at FAIR and HIE-ISOLDE*

Recommendations on Astrophysics:

- Physicists in Europe should have access to radioactive beam facilities at the frontier of exotic nuclei research. We strongly recommend the completion of the NUSTAR experimental facilities at FAIR, and *the planned and ongoing upgrades for more intense and new radioactive beams e.g. at ISOLDE (including the low-energy storage ring)*, SPES and GANIL-SPIRAL2.

Recommendations on Fundamental Symmetries:

- strengthening the development of radioactive molecular beams of interest for precision tests of the Standard Model and searches for new physics. The ongoing *program at ISOLDE for the production of actinide molecules* provides a blueprint for implementation at other facilities, as a variety of production techniques and environments is important for the availability of all species of interest for precision spectroscopy. These efforts require ensuring adequate beam time and funding for technical developments in molecular beam production at radioactive ion beam facilities.

Recommendations on Research Infrastructures:

- NuPECC recommends that a strategy is developed to secure future opportunities for continuing world-leading nuclear-physics programs that are unique to CERN, following the success of the diversity program using the **LHC** and **Proton Injectors**.
- The proposed program of improvements and consolidation that will lead to increased capacity and capability at **ISOLDE** should be completed. New initiatives should be sought to maximise the scientific exploitation of this unique ISOL facility, including increases to operational capacity and space.
- *Energetic exploitation of ISOLDE* at CERN, IGISOL at JYFL, ALTO and SPIRAL in France to provide the community with a wide portfolio of (low-energy) ISOL beams. *Continuing efforts in beam development will keep these facilities at a world-class level*. The realisation of ISOL@MYRRHA, optimised for long-lasting experiments, and continuation of a vigorous R&D program to define the RIF@IFIN facility.

plus many mentions in the text of the chapters.

Update of the European Strategy Roadmap for Particle Physics:

Heads up that this process will begin over the summer – likely to hear more on the process in next couple of weeks after this week's Council meeting (see email below 28th March 2024).

- “particle physics” = effectively all activities at CERN including ISOLDE – last time under the “Diversity Programme”. Need to check mandate/terms of reference to see what is possible for us.
- Prepare input on behalf of ISOLDE by ISCC – submission to NuPECC LRP good starting point. Will take advice locally.
- There are national submissions – would be helpful for ISCC reps to check that ISOLDE is raised in the national discussions that otherwise might only focus on “particle physics”. Could ISOLDE be mentioned under a heading of “synergies with other fields”?
- Might be helpful for instrument collaborations to submit something?

Dear Colleagues,

On 21 March 2024, the CERN Council decided to launch the process for updating the European Strategy for Particle Physics.

I am pleased to announce that the deadline for submitting written input has been set for 31 March 2025, with a view to concluding the European Strategy update process in June 2026.

The process will be managed by the Strategy Secretariat, which the Council will establish in June 2024, and more information, together with the call for input, will be issued by the Secretariat in due course.

In the meantime, the input that was submitted for the 2020 Strategy update can be consulted at the following link:
<https://indico.cern.ch/event/765096/contributions/>.

Kind regards, Eliezer Rabinovici
President of CERN Council



AGATA:

No comments from ISCC on my draft response to Angela Bracco – essentially same as previous position.

No formal reply from AGATA management.

Will continue to emphasise that needs AGATA community to engage and drive – and that there are significant challenges!

Technician:

Gone through the necessary approval steps with SY and HR.

Advertisement should go live soon.

LS3 Preparation:

Will contract instrument spokespeople with request for information about LS3 plans.

Connections to services, resources and fellowships.



ISOLDE Collaboration Committee News from the EP-SME-IS Section 21st June 2024

Sean J Freeman

Research Fellows = “Research Fellowship Experimental Physics (Cat 1)”

Simon Lechner (Nov 2022 – Oct 2024, Nov 2024)	MIRACLS
Jessica Warbinek (Jan 2024 – Dec 2025)	CRIS
Monika Piersa-Siłkowska (Feb 2022 – Jan 2024*, Feb – July 24, Aug 24 – Feb 25)	VITO
Peter Plattner (January 2025 – December 2026)	COLLAPS

* Previously Marie-Curie Individual Fellow

Simon has a permanent position in Bordeaux from 2025.

Applied Fellows = “Research Fellowship In Applied Physics And Engineering (Cat 2)”

Carlotta Porzio (March 2024 – Feb 2026, EP-SME-IS)	MINIBALL, HIE-ISOLDE
Patrick Macgregor (Nov 2022 – Oct 2025, EP-SME-IS)	ISS, HIE-ISOLDE
Michael Pesek (Nov 2022 – Oct 2024, Nov 25, various funding)	VITO + medical imaging
Lukas Nies (Sept 2023 – Aug 2025, Euro-Labs OH)	MR-TOFs/PUMA
Nikolay Azaryan (Dec 2023 – Nov 2025, ERC/ATLAS)	VITO/ATLAS

QUEST Fellows = “like an Applied Fellow hired directly to a specific project in advert”.

Amy Sparks (May 2023 – Nov 2024, Dec 25, ERC Proof of concept/CERN KT) VITO + medical imaging

Next deadline fellows and associates is 2nd Sept – advertised 3rd June.

CERN Doctoral Students:

Mateusz Chojnacki (July 2021 – June 2024) gammaMRI-EU-FET-open (Geneva)

Marcus Jankowski (Jan. 2021 – June 2024*) VITO Gentner (TU Darmstadt)

Tim Lellinger (March 2021 – July 2024*) COLLAPS Gentner (TU Darmstadt)

Ilaria Michelon (April 2023 – Feb 2026) VITO EU+EP Quota (Geneva)

Daniel Paulitsch (Aug 2023 – July 2026) VITO Austrian programme (Innsbruck)

* = Special extension due to COVID up to six months – “no longer available”!!

Scientific Associates: Joakim Cederkäll Oct 24 – Sept 25

Corresponding Associates: ☹️ ☹️

User Support:

Jenny Weterings (2002 -) Oslo University via collaboration + CERN

CERN Staff:

SJF, Section Leader and Collaboration Spokesperson LD (Aug 2021 – July 2025) EP-SME-IS

Magdalena Kowalska, Senior Research Physicist IC (Jan 2020 –) EP-SME-IS

Hanne Heylen, Physics Coordinator LD (Sept 2023 – Aug 2026) EP-SME-IS

Mark Bissell, Research Physicist LD (Sept 2022 – Aug 2025) ERC



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