Impact of COVID on 2020-2021
Low-energy ISOLDE activities

88th ISOLDE Collaboration Committee meeting
23rd of June 2020

Joachim Vollaire on behalf of EN-STI
Outline

- Situation and organization since mid-March
- Status and plans for frontends replacement finalization
- Plans for the new Fast Tape Station
- Nano-Laboratory construction and actinide target production
- Report on TISD activities
- MEDICIS update
Situation and organization since mid-March

• Mid-March the facility was put in a “safe mode” and all activities on-site (including LS2 projects) were suspended teleworking.

• Remote teleworking was beneficial and productive for the majority but less relevant for colleagues doing mainly hands-on work. Important also to keep social connection with “isolated” colleagues (stay-at-home order for France).

• Focus on training, documentation and technical specification for tendering process (new target vessel contract, nano-laboratory equipment….)

• Continue the excellent collaboration with all ISOLDE stakeholders (standing meetings maintained and additional ones).

• Ensure proper representation of ISOLDE in CERN wide committees. Very important when discussing priorities and support from technical teams.
CERN plan for restart

Phase 1

- Up to 600 persons on site
- Safe-mode and other urgent activities
- Resume gradually, starting with LS2, accelerator and detector upgrades, urgent site and building work

Phase 2

- LS2 Day 12th June
- + ~500 persons on site per week
- Ramp-up to "unlimited" access may be completed by mid-September

For EN-STI-RBS:
- Priority for frontends production
- Workshop activities
- Target production
- MEDICIS operation
- Students experiments (TISD)
- End of June, ~10 people on site out of ~20 (rotation)

People with symptoms or vulnerabilities not allowed to work on site
FE10 production status (installation on GPS)

- FE10 in Building 179 successfully vacuum tested during the last weeks
- Preparatory activities (alignment, cabling…. inside the GPS Faraday cage in view of the Frontend installation

New irradiation table

GPS Faraday Cage

FE to the target area

Stable beams
FE11 production status

- Stable beam testing period at offline2 starting in August
- New contract for J. Cruikshank until end of Jan. 2021 (+ 6 months, exceptional circumstances)
Nano-Laboratory Construction

**Situation mid March**

Construction could resume after a few weeks of interruption only in agreement with host state regulations and management approval.

**Situation mid June**

Part dedicated to radioactive material storage (heavy density concrete).
No nuclear ventilation in the ISOLDE laboratories until end of May in 2021

Laboratory for UCx production (no nano-material handling allowed)
# Targets for 2021 (anticipate in 2020)

UCx targets pre-production in view of nanolab ventilation cut Q1-Q2 2021

<table>
<thead>
<tr>
<th>Specimen from K1</th>
<th>2020-03</th>
<th>2020-04</th>
<th>2020-05</th>
<th>2020-06</th>
<th>2020-07</th>
<th>2020-08</th>
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</tbody>
</table>

UC targets pre-production in view of nanolab ventilation cut Q1-Q2 2021

- UC-MK1-W
- UC-MK1-Ta
- Sn-VD7
- Pb-VD
- UC-Ta-n
- UC-Ta

Also available: Targets from TISD tests

- UC-MK1-Re
- UC-VD7
- UC-VD5
- UC-MK1-W

UO+C pills production ongoing

10 targets in queue

- 708-UC-MK1
- 709-UC-MK1
- 710-UC-MK1
- 711-UC-MK1
- 712-UC-MK1
- 713-UC-VD5
- 714-UC-VD7
- 715-UC-MK1
- 716-UC-MK1
- 717-UC-MK1

Production of storage container ongoing

B. Crepieux, M. Owen, S. Rothe
New Fast Tape Station

- **Low level controls** to be tested/fixed *EN/SMM* (ongoing)
- Basic **high-level application** / Beam instrumentation display by *BE/OP* (from Oct 2020)
- Advanced **yield measurement application** via *EN/STI* (2021)
- **Detectors** (4pi beta | (beta/)gamma | alpha) with strong support by *EP/SME* (2020|2021|2022)
- Investigating SiPM electronics designed by IFIN *(Bucharest, Romania)*
- **Tapestation 2** at GLM on hold till TS1 advanced

https://doi.org/10.1016/j.nima.2019.163263
Target and Ion source development 20/21

Welcome new arrivals!

Mechatronics FTEC
Facility support
Y. Gracla

RILIS
Material Science FTEC
Target development
E. Rei

LIST
PhD Student Jun. FELL
Molecular Beams
M. Au

S. Rothe on behalf of TISD team

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### Target and Ion source development 20/21

<table>
<thead>
<tr>
<th>Short descr.</th>
<th>Target #</th>
<th>Ion source</th>
<th>Target</th>
<th>Mass marker / available beams</th>
<th>Beam to</th>
<th>Proposed exp/ descr.</th>
<th>Constraints</th>
<th>Linked experiment/ proposal</th>
<th>Contact person</th>
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<td>VADIS mod.</td>
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<td>Te</td>
<td>FC490</td>
<td>Measure Te RILIS efficiency pump-probe Test Cs suppression</td>
<td>Clean FE RILIS</td>
<td>Collapse Te (INTC-P-561) TAS n-rich In (INTC-P-559)</td>
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<td>VADIS Ion load</td>
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<td>Sm (contaminated) Rb,Cs)</td>
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<td>Measure the RILIS efficiency vs ion load and VADIS potentials</td>
<td>Clean FE RILIS</td>
<td>General VADIS performance</td>
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<td>2Photon</td>
<td>Tbd 2</td>
<td>VADIS + mirror</td>
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<td>Rb (tbc.)</td>
<td>FC490</td>
<td>Perform in-source 2 photon laser spectroscopy in-source</td>
<td>Clean FE RILIS</td>
<td>~All in-source laser spectroscopy</td>
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<td>TRefficiency 1</td>
<td>Tbd 3</td>
<td>MK1-Ta Container</td>
<td>Enriched Ti isotope in target container</td>
<td>FC490</td>
<td>Measure RILIS efficiency</td>
<td>Clean FE RILIS</td>
<td>44Ti</td>
<td>arr</td>
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<td>TR Efficiency 2</td>
<td>Tbd 3</td>
<td>MK1-Ta Container</td>
<td>Sample prepared from PSI w. nat.Ti</td>
<td>FC490</td>
<td>Measure efficiency under real conditions. Measure 44Ca contamination</td>
<td>Clean FE RILIS</td>
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<td>Mg (tbc) Na (tbc)</td>
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<td>LIST commissioning</td>
<td>Clean FE RILIS</td>
<td>IS456, (P556)</td>
<td>RH</td>
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<tr>
<td>P-list prep</td>
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<td>TBD. Rb? Good from laser side, but low temperature evaporation not representative</td>
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<td>MK1-Re UC-2018-12</td>
<td>Li</td>
<td>Sm</td>
<td>MED</td>
<td>Laser ionize actinides from UC targets (Pu, Np,...) Also check Prm, Tc</td>
<td>2 weeks in Nov @ MED MELISSA</td>
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<td>LISA</td>
<td>arr, MA</td>
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<td>Systematic study of beam composition / mass / target temp / level of fluorination, Probe molecular breakup using RILIS</td>
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<tr>
<td>Actinide Molecules VD5</td>
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<td>MK1-W UC</td>
<td>Big leak 1.1E-4 RfAf molecules for CRIS?</td>
<td>ISOLTRAP</td>
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23/06/2020
88th ISOLDE Collaboration Committee meeting - J. Vollaire

11
• Technical stop completed (January and February 2020)
• Successful stable beam commissioning (beginning of March)
• Installation stopped and put in safe mode on 16th of March 2020 (Covid)
• MEDICIS is back in operation with stable beam since 25th of May 2020
• Laser alignment performed and first laser ionized beam of the year with MELISSA on 15th of June 2020!
• First reception of an external radioactive source foresees for the 26th of June 2020 (Sm-153)
• MEDICIS website is now available!
• https://cern-medicis.web.cern.ch/
Thank you for your attention!