

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



ENGINEERING
DEPARTMENT

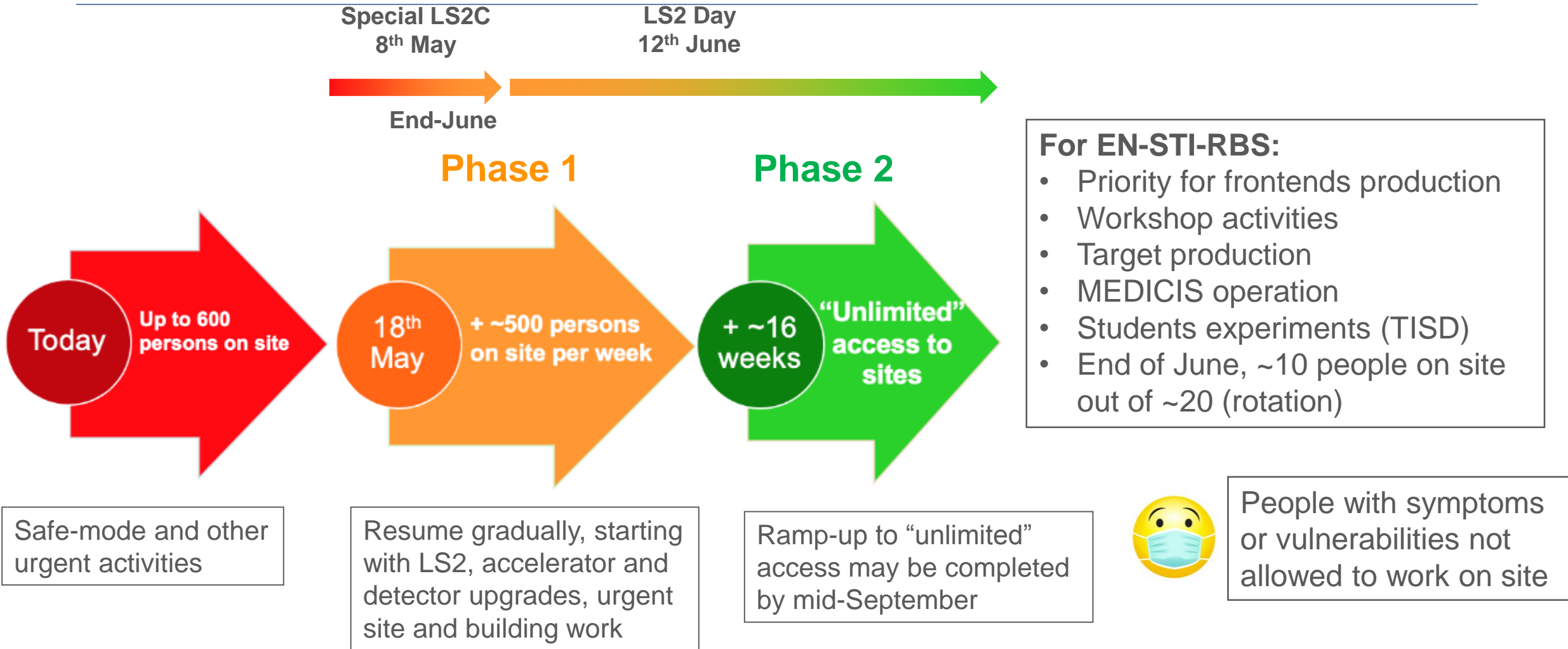
Outline

- 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.

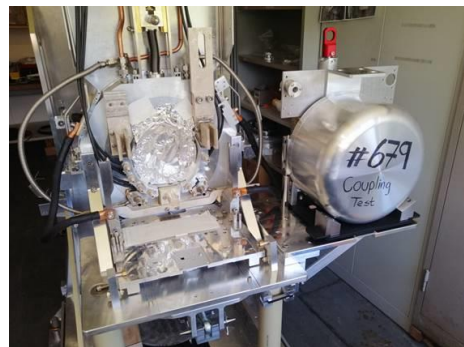
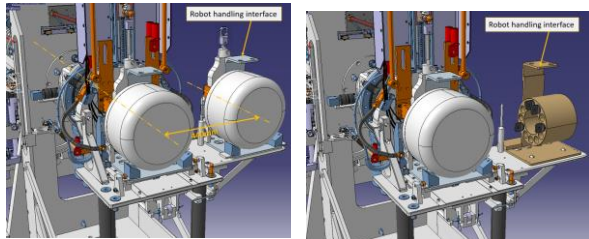
CERN plan for restart



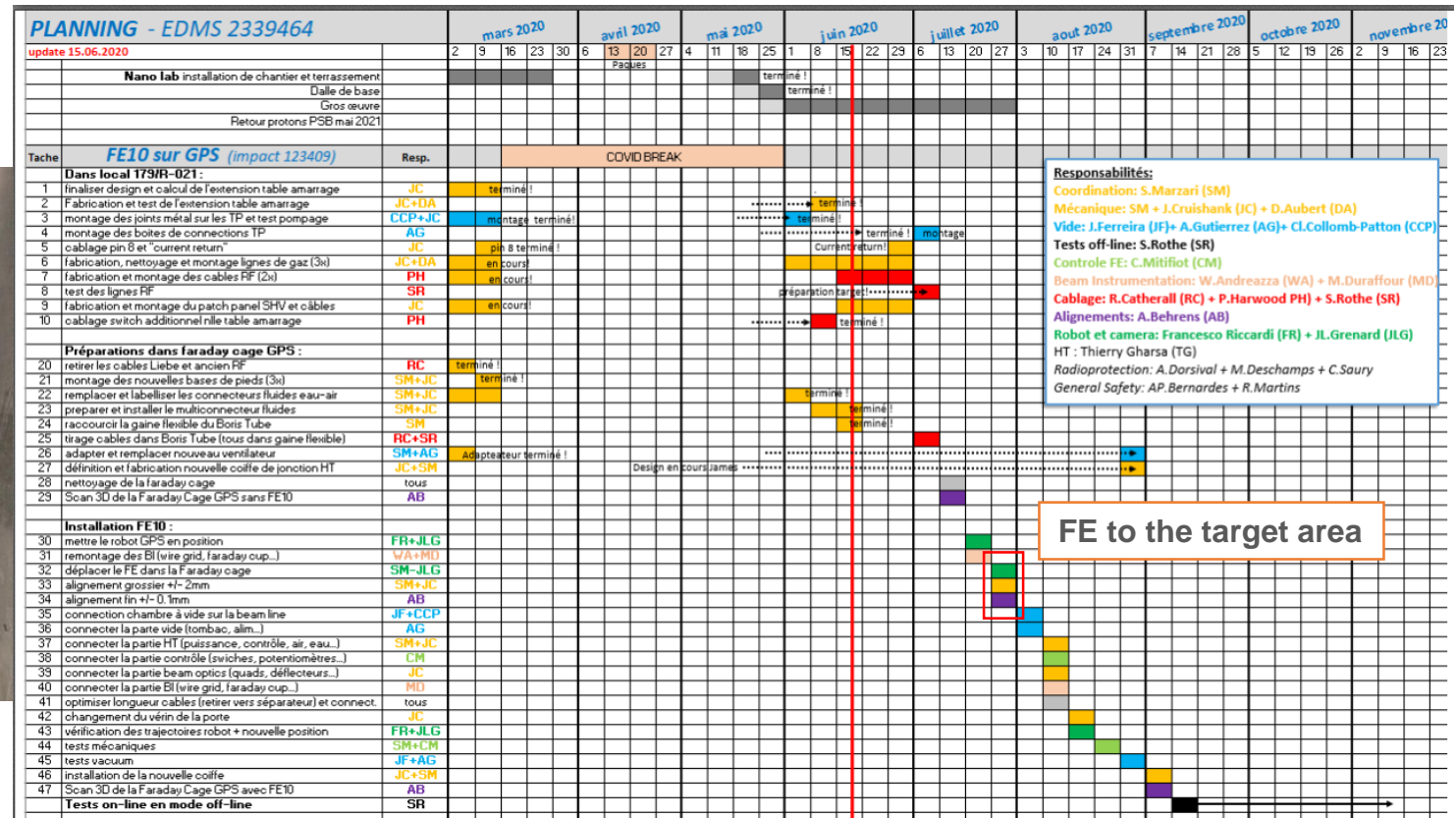
FE10 production status (installation on GPS)

- 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

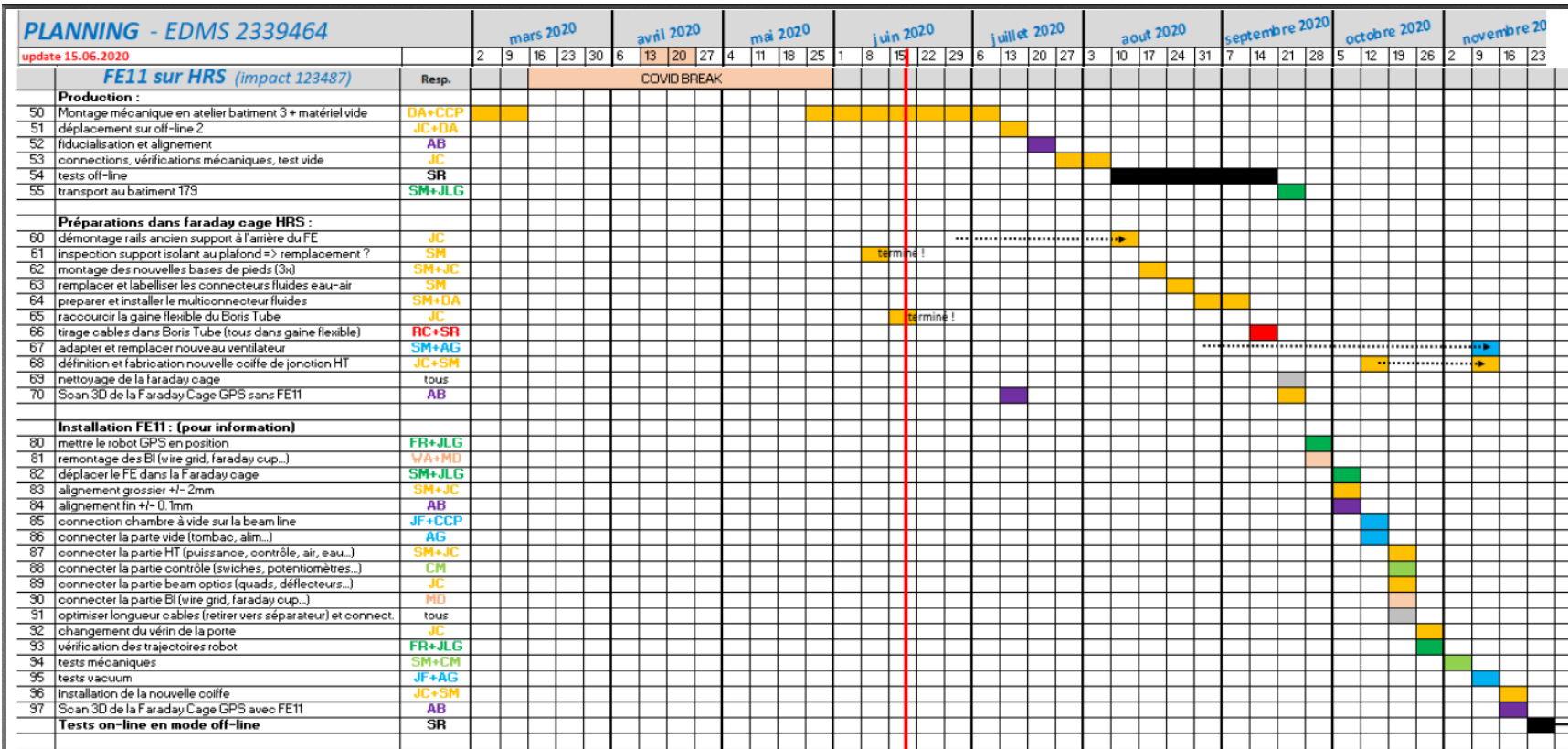
New irradiation table



GPS Faraday Cage



FE11 production status



Working on FE11 mechanical assembly



They smile (happy to be here !)



- 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



Situation mid June



Part dedicated to radioactive material storage (heavy density concrete)

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

New nano-laboratory – operational constraints

Laboratory for UCx production
(no nano-material handling allowed)

No nuclear ventilation in the ISOLDE laboratories until end of May in 2021

Carburation Area

UCx pills production

Radioactive storage

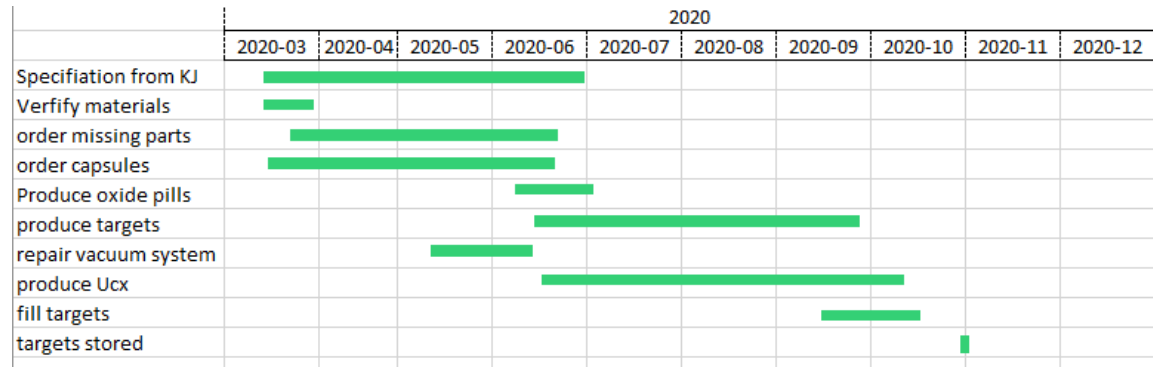
Existing Building

Phase 2

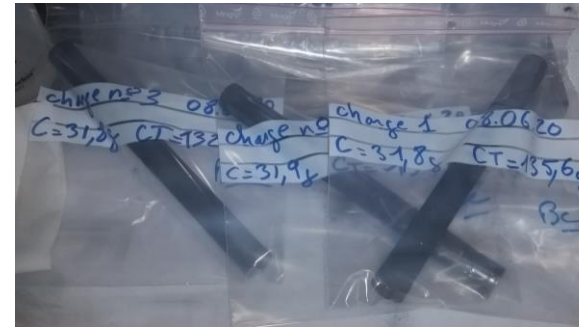
	20-Oct	Novembre 20				Décembre 20			Janvier 21				Février 21				Mars 21				Avril 21				Mai 21									
		S45	S46	S47	S48	S49	S50	S51	S52	S53	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22		
SMB	Carottage murs jonction																																	
	Carottages bâtiments existants (contrat cadre CERN)																																	
	Fermeture porte temporaire et dépose portes existantes																																	
	Encoffrement feu pour gaines CV																																	
	Résines au sol																																	
	Fin peintures au murs (2eme couche)																																	
	Retour étanchéité équipement																																	
	Pose murs et sas démontable																																	
	Pose des faux plafonds																																	
	Pose des dernières portes																																	
Calfeutrement coupe-feu																																		
CV	Pose des supports gaines + CdC																																	
	Pose des gaines & fluides																																	
	Pose des équipements aérauliques																																	
	tirage des câbles (raccordement sur les équipements existants)																																	
EL/EIC	Installation support & CdC tous																																	
	tirage des câbles dans CdC																																	
	Pose des luminaires																																	
	Pose des goulottes et des descentes de prises depuis CDC																																	
EL/FC	Luminaires																																	
	tirage des câbles pumpstands																																	
	tirage des câbles de détection incendie																																	
IT	tests des câbles incendies																																	
	Déplacement cable GSM																																	
	tirage des câbles IT																																	
Détection Incendie	goulottes + boites plugs																																	
	tests																																	
	Installation équipements + reniflurs																																	
Gaz	Tests																																	
	Installation																																	
	Travaux extérieurs+ tests																																	
Process	Déménagement Pumpstands																																	
	Livraison équipements																																	
	Installation équipements																																	
	tests équipements																																	
Access control	Livraison/installation RW storage																																	
	tirage de câble jusqu'à porte entrée																																	
	installation équipement																																	
RP	+raccordement porte																																	
	tests																																	
RP	Installation Monitoring																																	
	tests																																	

Targets for 2021 (anticipate in 2020)

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



UO+C pills production ongoing



10 targets in queue

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

Targets to be reused for 2021

- #654-UC-MK1-W
- #635-UC-MK1-Ta
- #534-Sn-VD7
- #619-Pb-VD
- #653-UC-Ta-n
- #641-UC-Ta

Also available: Targets from TISD tests

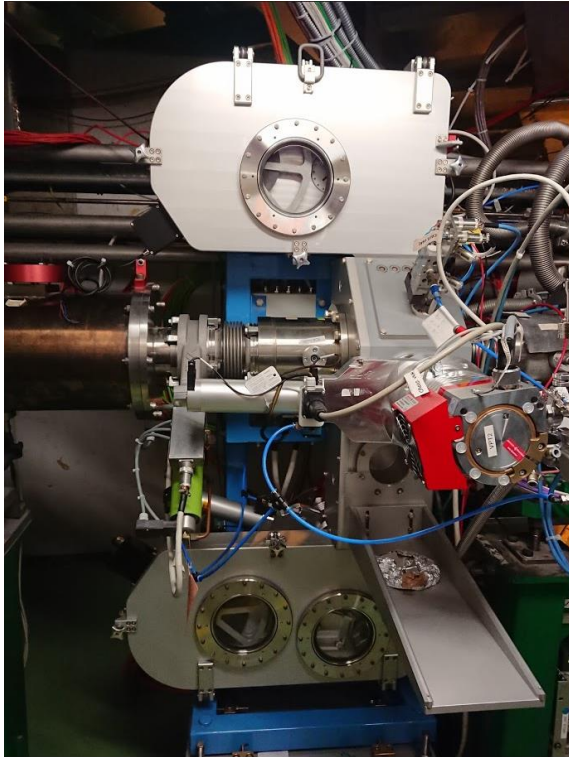
- #638-UC-MK1-Re
- #659-UC-VD7
- #668M-UC-VD5
- #637-UC-MK1-W

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>

Courtesy of S. Rothe

Target and Ion source development 20/21

Welcome new arrivals !

Short descr.	Target #	Ion source	Target	Mass marker / available beams	Beam to	Proposed exp/ descr.	Constraints	Linked experiment/ proposal	Contact person
VADLIS Te/Cs-suppression	Tbd 1	VADIS mod.	none	Te Cs Noble gasses	FC490	Measure Te RILIS efficiency pump-probe Test Cs suppression	Clean FE RILIS	Collaps Te (INTC-P-561) TAS n-rich In (INTC-P-559)	BM
VADLIS Ion load	Tbd 1	VADIS Mod.	none	Sm (contaminat tbd. Rb,Cs) Noble gasses	FC490	Measure the RILIS efficiency vs ion load and VADLIS potentials	Clean FE RILIS	General VADLIS performance	BM
2Photon	Tbd 2	VADIS + mirror	none	Rb (tbc.) Noble gasses	FC490	Perform in-source 2 photon laser spectroscopy in-source	Clean FE RILIS Laser from CRIS	~All in-source laser spectroscopy	KC
Ti efficiency 1	Tbd 3	Mk1-Ta	Container	Enriched Ti isotope in target container	FC490	Measure RILIS efficiency	Clean FE RILIS	44Ti	srr
Ti Efficiency 2	Tbd 3	Mk1-Ta	Container	Sample prepared from PSI w. nat.Ti	FC490	Measure efficiency under real conditions. Measure 44Ca contamination Transport through HIE isolate ?	Clean FE RILIS	44Ti	srr
LIST @ GPS	Tbd 4	PI LIST	none	Mg (tbc) Na (tbc)	FC490	LIST commissioning	Clean FE RILIS	IS456, (P556)	RH
LIST @ HRS	Tbd 4	PI LIST	none	Mg (tbc) Na (tbc)	FC490	LIST commissioning	Clean FE RILIS	IS456, (P556)	RH
PI-list prep					CA0	Verification that slotted extraction electrode tip has no effect. Back to back comparison of beam transmission through the machine Transmission, beam shape, mass resolution, (emittance)	Clean FE	IS456, (P556), LISA	RH
PI-LIST spectroscopy	Tbd 4	PI-LIST	none	Tbd. Rb? Good from laser side, but low temperature evaporation not representative	FC490	Perform offline hres spectroscopy	RILIS NB	IS456, (P556), LISA	RH
RILIS@Actinides	#638	MK1-Re	UC-2018-12	Li Sm	MED	Laser ionize actinides from UC targets (Pu, Np, ...). Also check Pm, Tc	2 weeks in NOV @ MED MELISSA	LISA	RH
Actinide Molecules VD7	#659	VD7	UC-2018-05	Standard leak	ISOLTRAP	Systematic study of beam composition : mass / target temp / level of fluorination. Probe molecular breakup using RILIS	MRTOF RILIS	LISA	srr, MA
Actinide Molecules VD5	#668M	VD5	UC		ISOLTRAP	Systematic study of beam composition : mass / target temp / level of fluorination. Probe molecular breakup using RILIS	MRTOF RILIS	LISA	srr, MA
Actinide Molecules MK1	#637	MK1-W	UC	Big leak 1.1E-4 RaF molecules for CRIS ?	ISOLTRAP	Systematic study of beam composition : mass / target temp / level of fluorination. Probe molecular breakup using RILIS	MRTOF RILIS	LISA RaF (INTC-P-555)	srr, MA

RILIS

LIST

Molecular beams

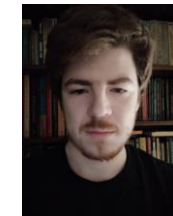
S. Rothe on behalf of TISD team

Mechatronics FTEC
Facility support



Y. Gracia

Material Science FTEC
Target development



E. Reis

PhD Student Jun. FELL
Molecular Beams



M. Au

MEDICIS Status Report (02/20 to 06/20)



- Technical
- Successful
- Installation
- MEDICIS
- Laser alignment on 15th of
- First receipt (Sm-153)
- MEDICIS website is now available!
- <https://cern-medicis.web.cern.ch/>



WELCOME TO THE CERN-MEDICIS WEBSITE!



NEWS!

- **25/05/2020**
MEDICIS is restarting after the COVID outbreak!
- **15/05/2020**
PRISMAP: The European medical isotope programme, a consortium with the principal medical radionuclides providers - including MEDICIS - was submitted yesterday for funding by the European Commission; feedback expected after the summer.
- **Job opportunities!**
Hevesy Lab at DTU Riso, Denmark, has an open permanent position for a "Cyclotron & Radionuclide Specialist for Medical Isotopes"

(Covid)
y 2020
ear with MELISSA
26th of June 2020

C. Duchemin on behalf of MEDICIS

Thank you for your
attention!



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