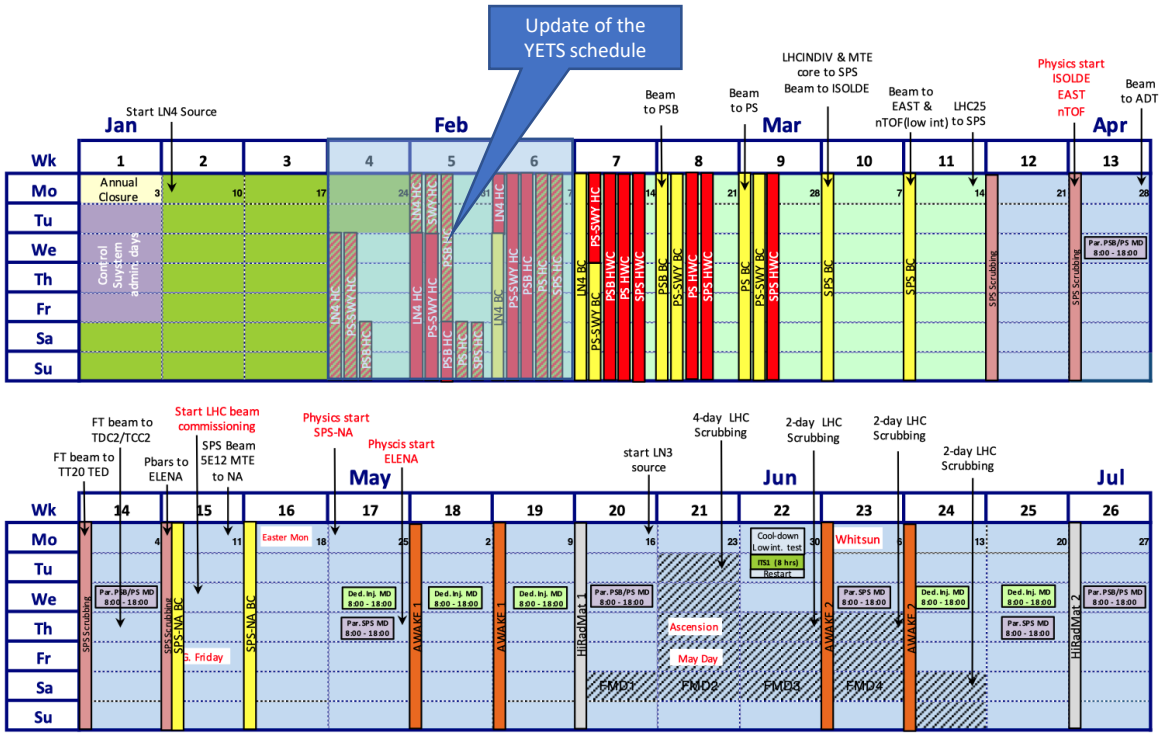
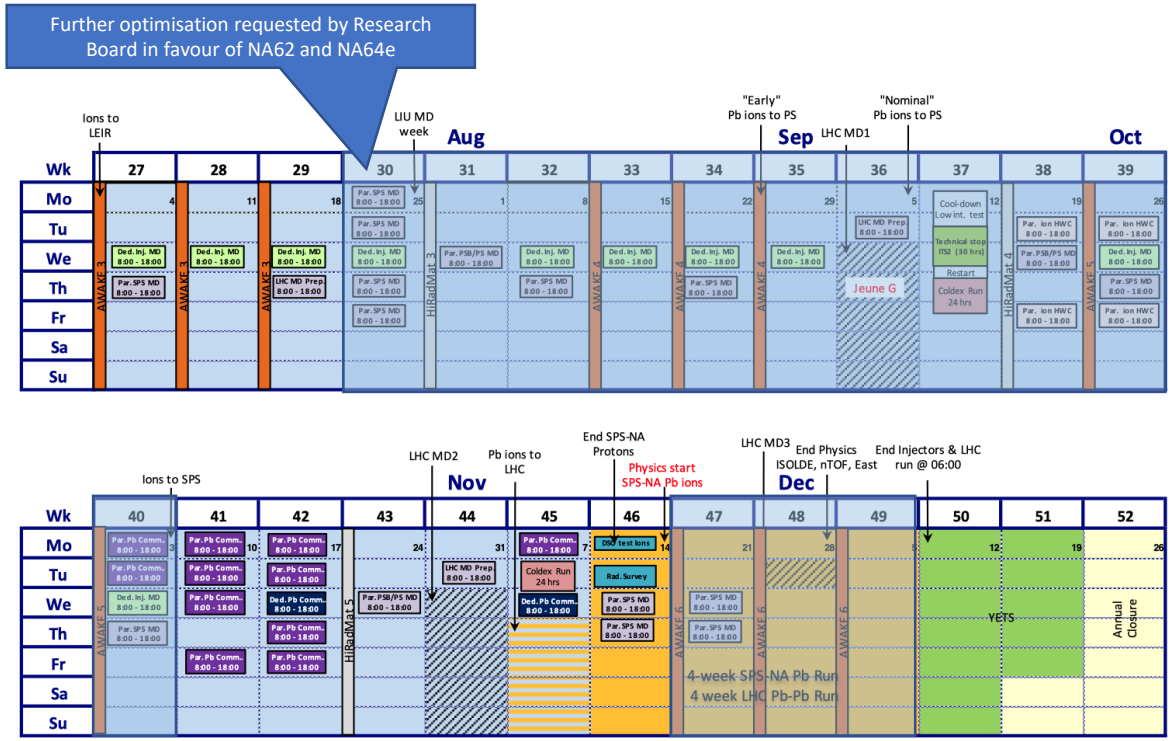
ISCC 94: ISOLDE coordinator presentation

- 2022 schedule and feedback from first runs
- Around the hall: Space and new setups – a growing challenge
- First dates for 2023
- Training

Accelerator schedule for 2022





- ISOLDE physics start: March 28th
- End of protons, not necessarily of physics: November 28th

(but short period for winter physics).

- 245 days of physics
- Very high demand throughout the complex. Number of supercycles can be limited at times: change of supercylces is out of booster's direct control

Experimental facility	Start Physics	End Physics	Duration 2022 [days]*	Duration 2018 [days]*
ISOLDE	28.03.2022	28.11.2022	245	217
nTOF	28.03.2022	28.11.2022	245	224
PS East Area	28.03.2022	28.11.2022	245	224
SPS North Area p^+	25.04.2022	14.11.2022	203	217
ELENA (AD)	28.04.2022	12.12.2022	228	196
SPS North area Pb ions	14.11.2022	12.12.2022	28	28
AWAKE	02.05.2022	12.12.2022	84	91
HiRadMat	16.05.2022	31.10.2022	35	25

*TS, MD time, etc. not deducted

Beam requests for 2022

As can be seen: very high demand, but more competing opportunities also exist (not the case last year) e.g. conferences, experiments elsewhere, holidays(!)

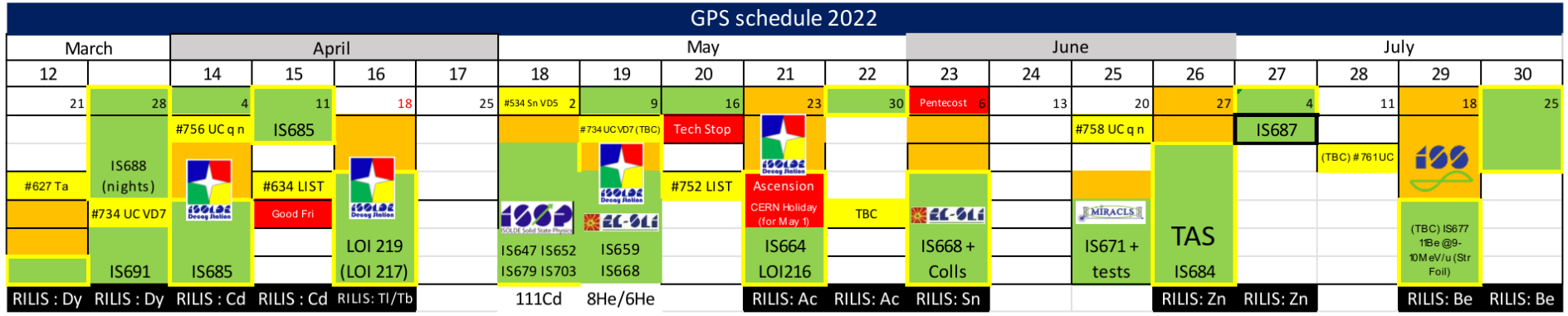
Miniball is back in 2022, but no T-REX this year. Delays with DAQ mean stable beam only from September onwards.

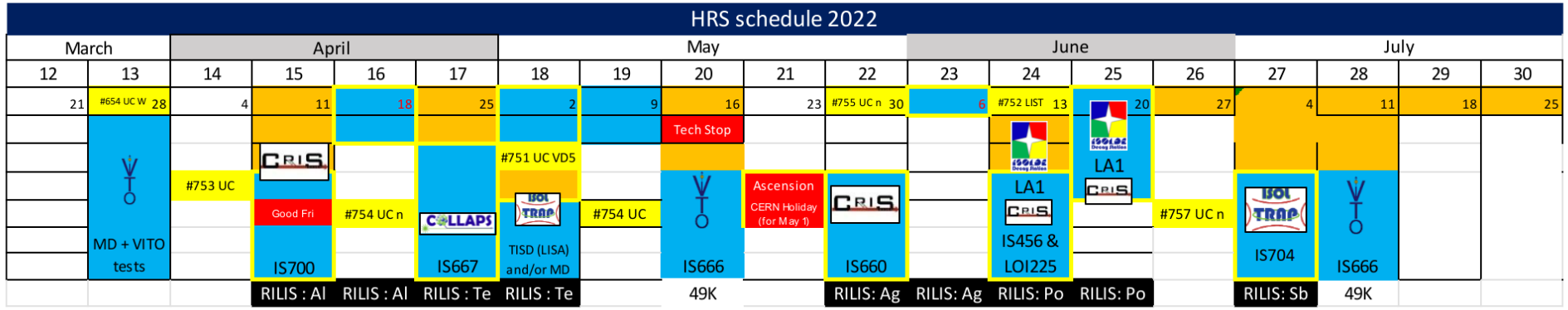
Almost 50% of the shift request for HIE ISOLDE but only 50% of the running period possible.

Issue with the 7gap (and delay with Miniball) has resulted in August being reshuffled with focus on beam development and low energy

Row Labels	Count of Experiment	Sum of Requested shifts
Biophysics	**1**	**5**
COLLAPS	**2**	**22**
CRIS	**6**	**61**
HIE	**32**	**394**
ACTAR	1	21
ISS	10	104
Miniball	17	184
XT03	1	23
XT03: Edinburgh	1	42
XT03: SEC	2	20
IDS	**10**	**76**
IDS	**1**	**15**
IDS / ISOLTRAP	**1**	**6**
IDS/TAS	**2**	**7**
IDS/TISD	**1**	**2**
In-source/IDS	**2**	**10**
ISOLTRAP	**1**	**8**
Medical	**3**	**12**
MIRACLS	**3**	**0**
SSP	**26**	**57.5**
TAS	**2**	**37**
TISD	**10**	**27**
VITO	**4**	**23**
Wisard	**1**	**24**
ISOLTRAP/TISD	**1**	**31**
Grand Total	**109**	**817.5**

ISOLDE Schedule 2022: weeks 12 - 30



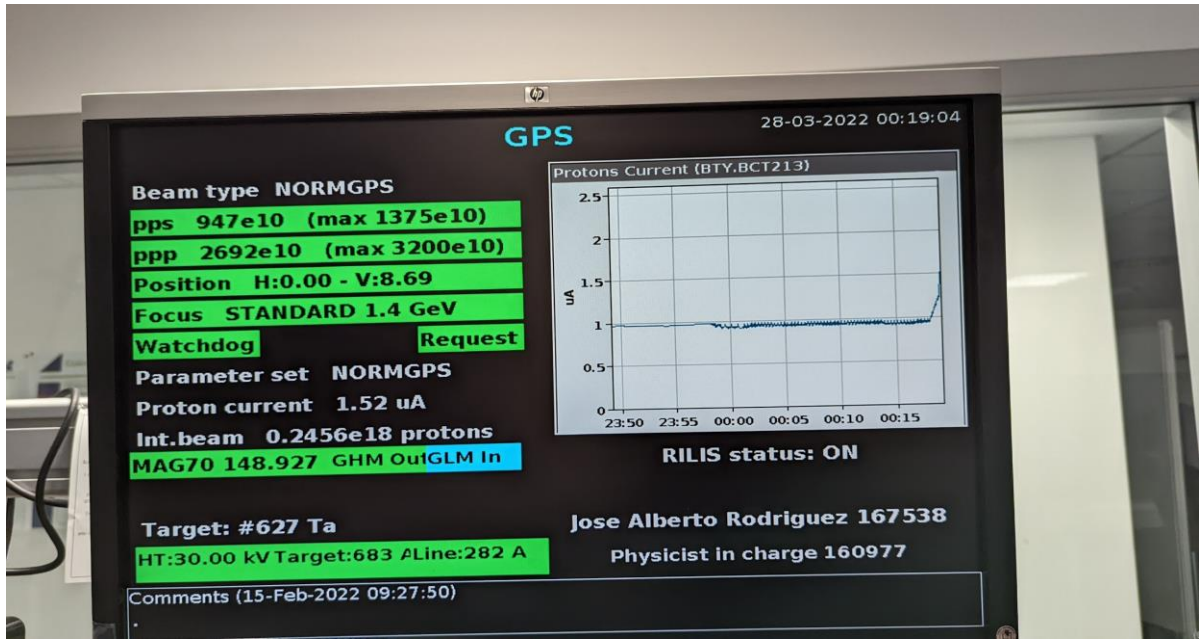


Start of protons for physics: 28 March
End of protons for physics: 28 November

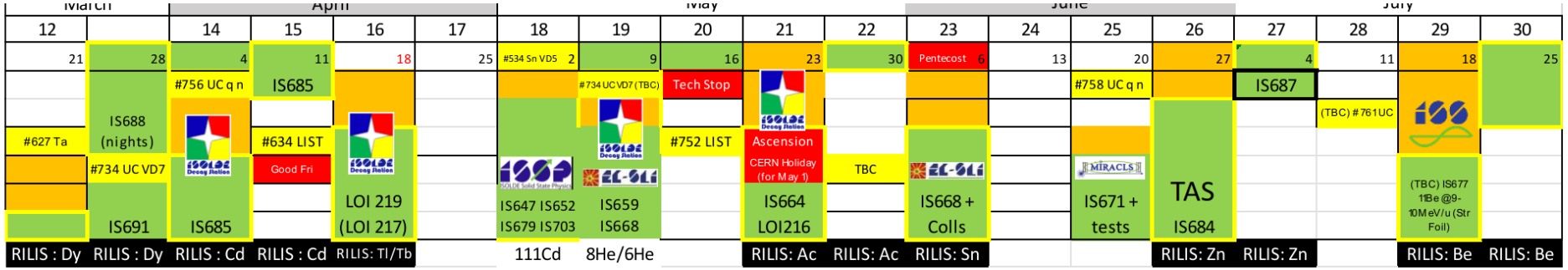
Target change | CERN holiday | Setting up/proton scan/yield | Physics HPS | Physics GRS | RILIS run

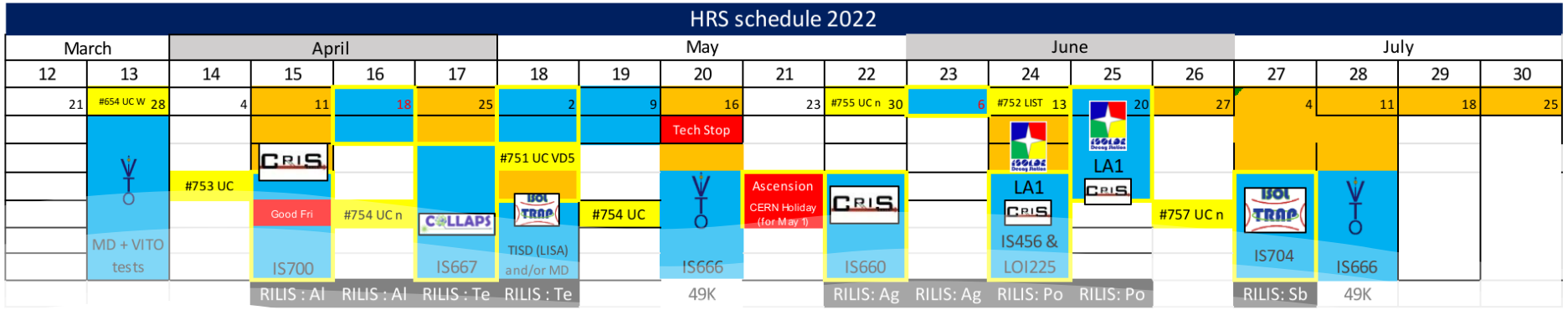
KJ: 02.05.22

So far 20 experiments have run with ~187 shifts delivered for low energy physics (and some beam development)


GPS
28-03-2022 00:19:04
Beam type NORMGPS
pps 947e10 (max 1375e10)
ppp 2692e10 (max 3200e10)
Position H:0.00 - V:8.69
Focus STANDARD 1.4 GeV
Watchdog
Request
Parameter set NORMGPS
Proton current 1.52 uA
Int.beam 0.2456e18 protons
MAG70 148.927 GHM Out
GLM In
Protons Current (BTY.BCT213)
uA
2.5
2
1.5
1
0.5
0
23:50
23:55
00:00
00:05
00:10
00:15
RILIS status: ON
Target: #627 Ta
HT:30.00 kV Target:683 A Line:282 A
Jose Alberto Rodriguez 167538
Physicist in charge 160977
Comments (15-Feb-2022 09:27:50)


Who is Who @
CERN Single Sign-On



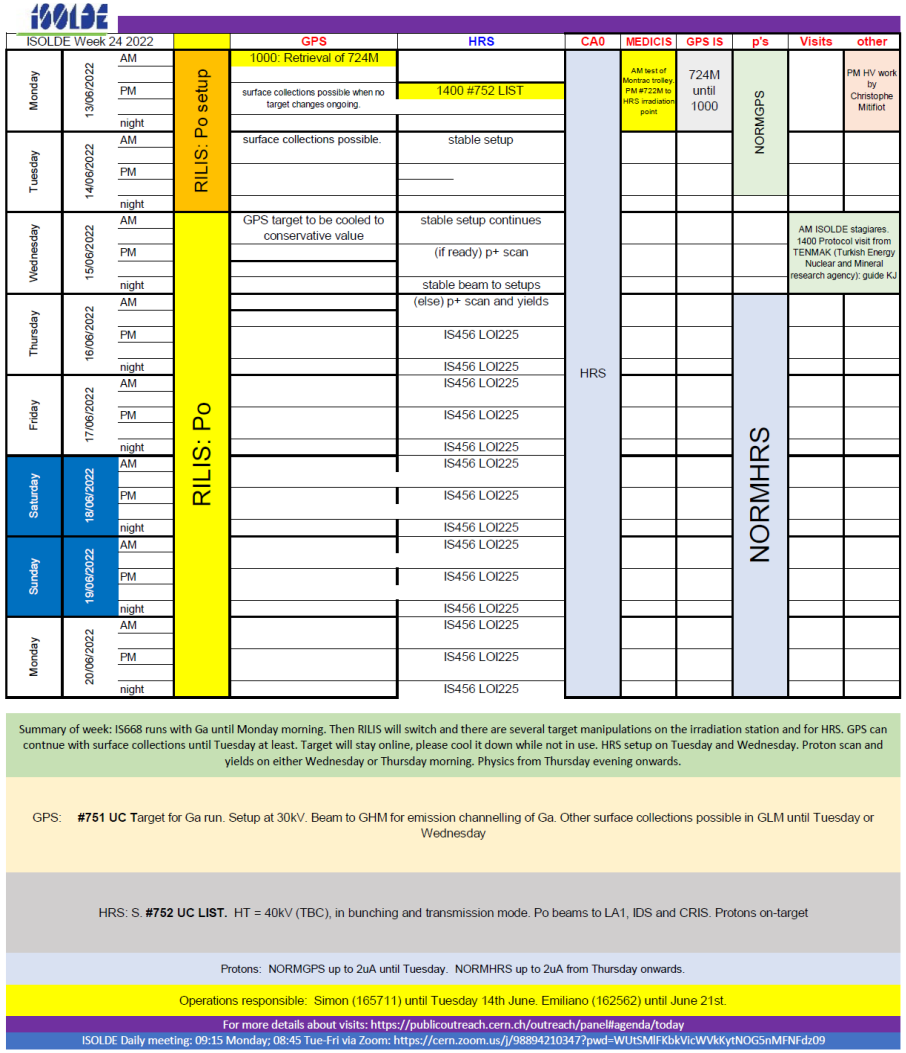


Feedback from runs

- As Joachim mentioned today: relatively few requests for “standard” target units e.g. no UC Ta on GPS until 11th week of physics…
- LIST is now becoming a highly requested unit.
  - Needs considerable setting up time and expertise.
  - Difference in behaviour between GPS and HRS: loss of time structure in PI-LIST mode due to the ISCOOL. (solution would be upgrade of beamgates)
  - RILIS can’t be considered “standard” operation for such runs either: extra resources for personnel would be useful. Some fine-tuning of schedule has been required
- Quartz lines also being requested more frequently, still some development work needed e.g. water leak developed during Cd run.
- Heavy period for IDS, but strong local team has coped well.
- Position of proton beam especially for neutron convertors.
- Reuse of previous targets has been mostly successful: vacuum leak after 5e18 protons not seen as before. Inevitably some failures….
- Position of proton e.g. for neutron convertor has been an issue.

MEDICIS and the Irradiation station

- Relatively quiet period for MEDICIS
- Some irradiations have been made
- The issue with the proton beam position is of particular relevance for MEDICIS.
- GPS irradiation station has been producing much higher activities.
- MEDICIS frontend has been useful for checking some used ISOLDE targets.



ISOLDE Week 24 2022

				GPS	HRS	CA0	MEDICIS	GPS IS	p's	Visits	other
Monday	13/06/2022	AM	RILIS: Po setup	1000: Retrieval of 724M		HRS	AM test of Montrac trolley PM #722M to HRS irradiation point	724M until 1000	NORMGPS		PM HV work by Christophe Mitifiot
		PM		surface collections possible when no target changes ongoing	1400 #752 LIST						
		night									
Tuesday	14/06/2022	AM		surface collections possible.	stable setup						
		PM									
		night									
Wednesday	15/06/2022	AM	RILIS: Po	GPS target to be cooled to conservative value	stable setup continues					AM ISOLDE stagiares. 1400 Protocol visit from TENMAK (Turkish Energy Nuclear and Mineral research agency): guide KJ	
		PM			(if ready) p+ scan						
		night			stable beam to setups						
Thursday	16/06/2022	AM			(else) p+ scan and yields				NORMHRS		
		PM			IS456 LOI225						
		night			IS456 LOI225						
Friday	17/06/2022	AM			IS456 LOI225						
		PM			IS456 LOI225						
		night			IS456 LOI225						
Saturday	18/06/2022	AM			IS456 LOI225						
		PM			IS456 LOI225						
		night			IS456 LOI225						
Sunday	19/06/2022	AM			IS456 LOI225						
		PM			IS456 LOI225						
		night			IS456 LOI225						
Monday	20/06/2022	AM			IS456 LOI225						
		PM			IS456 LOI225						
		night			IS456 LOI225						

Summary of week: IS668 runs with Ga until Monday morning. Then RILIS will switch and there are several target manipulations on the irradiation station and for HRS. GPS can contnue with surface collections until Tuesday at least. Target will stay online, please cool it down while not in use. HRS setup on Tuesday and Wednesday. Proton scan and yields on either Wednesday or Thursday morning. Physics from Thursday evening onwards.

GPS: **#751 UC** Target for Ga run. Setup at 30kV. Beam to GHM for emission channelling of Ga. Other surface collections possible in GLM until Tuesday or Wednesday

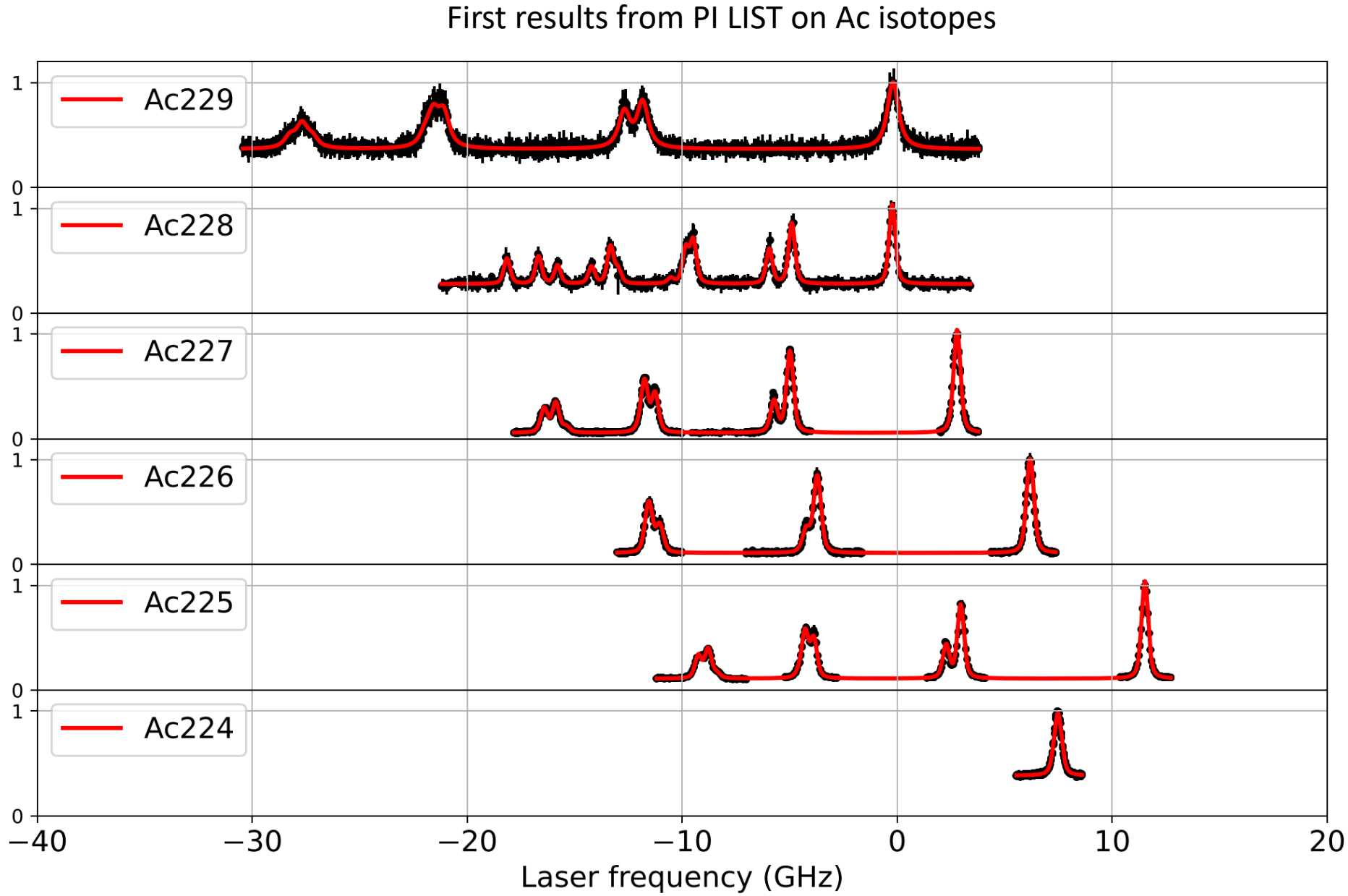
HRS: S. **#752 UC LIST.** HT = 40kV (TBC), in bunching and transmission mode. Po beams to LA1, IDS and CRIS. Protons on-target

Protons: NORMGPS up to 2uA until Tuesday. NORMHRS up to 2uA from Thursday onwards.

Operations responsible: Simon (165711) until Tuesday 14th June. Emiliano (162562) until June 21st.

For more details about visits: https://publicoutreach.cern.ch/outreach/panel#agenda/today

ISOLDE Daily meeting: 09:15 Monday; 08:45 Tue-Fri via Zoom: https://cern.zoom.us/j/98894210347?pwd=WUtSMlFKbkVicWVkKytNOG5nMFNFdz09


First results from PI LIST on Ac isotopes
Ac229
Ac228
Ac227
Ac226
Ac225
Ac224
1
0
−40
−30
−20
−10
0
10
20
Laser frequency (GHz)

ISOLDE Schedule 2022: weeks 12 - 36

GPS schedule 2022

March		April				May					June				July				August				
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
21	28	4	11	18	25	#534 Sn VD5 2	9	16	23	30	Pentecost 6	13	20	27	4	11	18	25	1	8	15	22	29
	IS688 (nights)	#756 UC q n	IS685				#734 UCVD7 (TBC)	Tech Stop					#758 UC q n		IS687								
#627 Ta			#634 LIST				EC-SLI			Ascension	EC-SLI			TAS					TBC		Sn or Pb		
	#734 UC VD7		Good Fri					#747 LIST		CERN Holiday (for May 1)			MIRACLS			(TBC) # 761 UC				TISD/MD			Stable to Miniball
	IS691	IS685		LOI 219 (LOI 217)		IS647 IS652 IS679 IS703	IS659 IS668		IS664 LOI216		IS668 + Colls	IS671 + tests		IS684			(TBC) IS677 11Be@9-10MeV/u (Str Foil)	IS710 27Na@ 9-10MeV/u				Hg or Cd?	
RILIS : Dy	RILIS : Dy	RILIS : Cd	RILIS : Cd	RILIS: Tl/Tb		111Cd	8He/6He		RILIS: Ac	RILIS: Ac	RILIS: Ga			RILIS: Zn	RILIS: Zn		RILIS: Be	RILIS: Be	27Na			199Hg or 111Cd	
																		27Na					

HRS schedule 2022

March		April				May					June				July				August				
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
21	#654 UC W 28	4	11	18	25	2	9	16	23	#755 UC n 30	6	#752 LIST 13	20	27	4	11	18	25	1	8	15	22	29
								Tech Stop											(TBC)		XXX UC n		
		#753 UC	CRIS			#751 UC VD5						LA1											
	MD + VITO tests		Good Fri	#754 UC n	COLLAPS	ISOLTRAP	#754 UC	VITO	Ascension CERN Holiday (for May 1)	CRIS		CRIS		#757 UC n	ISOLTRAP	VITO							Stable to Miniball
			IS700		IS667	TISD (LISA) and/or MD		IS666		IS660		IS456 & LOI225			IS704	IS666				TISD/MD	IS622		
			RILIS : Al	RILIS : Al	RILIS : Te	RILIS : Te		49K		RILIS: Ag	RILIS: Ag	RILIS: Po	RILIS: Po		RILIS: Sb	49K					RILIS: Cu		

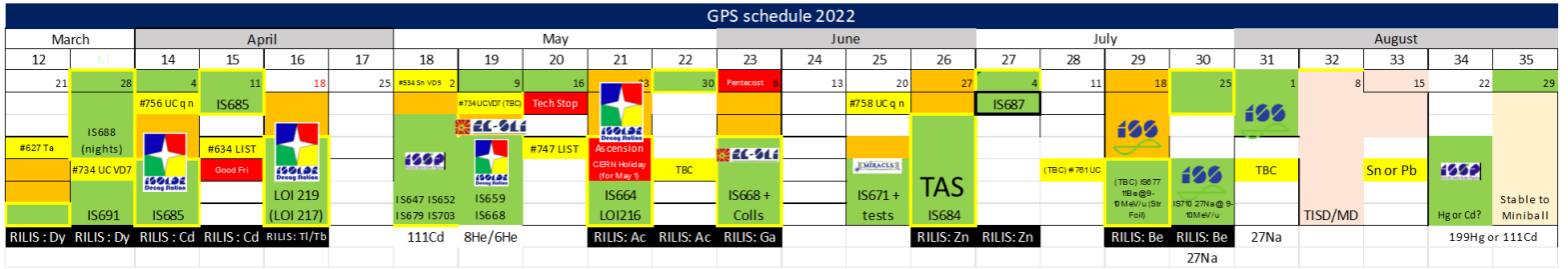
Start of protons for physics: 28 March
End of protons for physics: 28 November

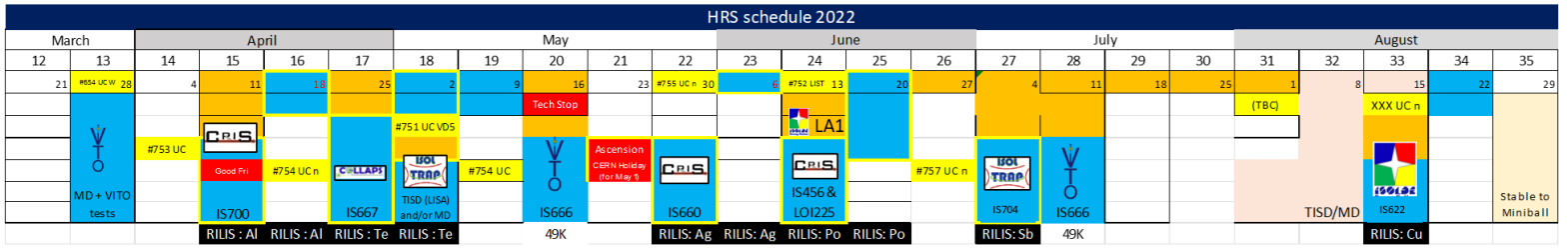
Target change	CERN holiday	Setting up/proton scan/yield	Physics HPS	Physics GRS	RILIS run

KJ: 20.06.22

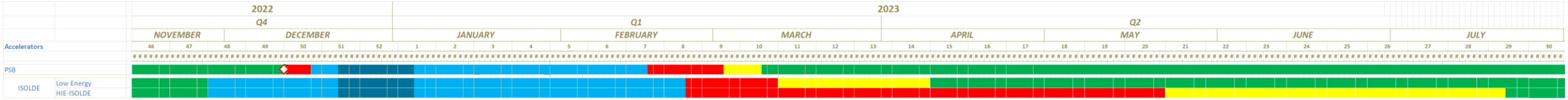
Concerns/issues for the Autumn

- 7gap vibrations could come back again
- Lack of commissioning time has resulted in loss of reference setups for HIE ISOLDE (which have been invaluable for low energy this year).
- EBIS not holding Lhe as well as previously.
- Assuming that Miniball will be fully up and running
- Delivery of H3 targets for HIE ISOLDE experiments.
- Lack of availability of some teams at various times through the Autumn
- Nonetheless a draft planning is being worked on which should be released quite soon.
- Good news!
  - Euroloabs TNA will allow for more general support of users.





ISOLDE: draft planning for 2023 (still at discussion stage)



- ***Key Dates:***
  - Low energy
    - Hardware Commissioning from the 24/02/2023 to the 12/03/2023
    - Beam Commissioning from the 13/03/2023 to the 09/04/2023
    - Beam for ISOLDE physics: 10/04/2023
  - HIE-ISOLDE
    - Hardware Commissioning from the 24/02/2023 to the 21/05/2023
    - Beam Commissioning from the 22/05/2023 to the 19/07/2023
    - Beam for HIE physics: 20/07/2023

Relevant information

- Despite being in the YETS maintenance and installation works period HIE-ISOLDE requires stable Cryo plant cooling conditions up to the end of week 50 (16/12/2022 for 2 wks controlled warm up of the Cryo Modules)
- Start of hardware commissioning in week 8 for the HIE-ISOLDE depends on the completion of cooling maintenance
- Start of hardware commissioning in week 8 for the low energy ISOLDE depends on the completion of ventilation works
- Beam from PSB to Low Energy ISOLDE in the beginning of week 13 (27/03/2023 for 2wks setting up BTY and SEMGRID tests)

Prepared with E. Siesling, J. Vollaire and J. A. Rodriguez

F Pedrosa from last week's IEFC

Reminder of backlog (including INTC69, but not the running period this year)

Row Labels	Count of Count	Sum of Shifts remaining before 2022 till end of Run3
biophysics	1	9.5
COLLAPS	4	39
Collections: 108Ag	1	30
Collections: 163Ho	1	5
CRIS	7	86.5
Gandalph	1	8
Gandalph/CRIS	1	6
HIE ISOLDE	35	548
ISS	11	135
ISS/Miniball	1	17
Miniball	17	275
Prototype	1	0
SEC	1	23
XT03	1	23
XT03: Actar	1	21
XT03: Corset	1	12
XT03: Edinburgh	1	42
IDS	15	170.5
IDS/ISOLTRAP	1	6
ISOLTRAP	5	43
Medical physics	2	11
MIRACLS	1	17
SSP	11	97.5
TAS	4	53
TISD	8	37
TISD/IDS	1	9
Travelling Setup	2	17
Travelling Setup; ECSLI	1	0
VITO	1	28
WISARD	1	24
TISD/Miniball	1	4
TISD/TDPAC	1	4
Grand Total	106	1253

INTC 70 summary

ISOLDE	**13**	**232**
Decay spectroscopy	**3**	**55**
Addendum	1	4
Letter of Clarification	1	23
Proposal	1	28
HIE	**4**	**62**
Letter of Clarification	1	21
Proposal	3	41
Laser Spectroscopy	**3**	**49**
Letter of Intent	1	16
Proposal	2	33
Mass spectrometry	**1**	**18**
Proposal	1	18
Proton upgrade	**1**	**28**
Proposal	1	28
Solid state	**1**	**20**
Proposal	1	20

https://indico.cern.ch/event/1162031/

CERN-INTC-2020-001 / INTC-I-208
06/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

Upgrade of the UHV-system ASPIC for the investigation of surfaces and two-dimensional materials by ultra-low energy implantation and deposition of radioactive probe atoms

CERN-INTC-2020-003 / INTC-I-209
08/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

PUMA: antiProton Unstable Matter Annihilation

January 6, 2020

CERN-INTC-2020-007 / INTC-I-210
08/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

Upgrade and scientific programme of *LUCRECIA*, the Total Absorption Spectrometer at ISOLDE

Jan - 8th - 2020

CERN-INTC-2020-008 / INTC-I-211
08/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

eMMA - Development of an emission Mössbauer apparatus at ISOLDE for the investigation of magnetic materials

[8.01.2020]

New setups/space in the hall

CERN-INTC-2020-011 / INTC-I-212
10/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

MULTIPAC-Setup for γ–γ Perturbed Angular Correlation Experiments in Multiferroic (and Magnetic) Materials

January 8th 2020

CERN-INTC-2020-012 / INTC-I-213
10/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

Research plans for the laser-polarization beamline VITO at ISOLDE

8 January 2020

CERN-INTC-2020-013 / INTC-I-214
13/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

(Following HIE-ISOLDE Letters of Intent I-119, I-191, I-194, I-195 and Memorandum INTC-M-020)

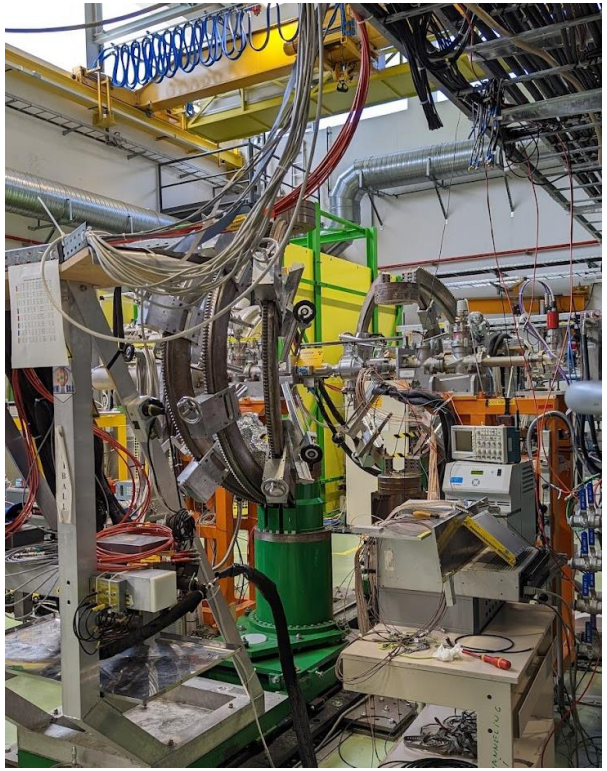
The SpecMAT active target

January 13, 2020

CERN-INTC-2020-015 / INTC-I-215
13/01/2020

MIRACLS- the Multi Ion Reflection Apparatus for Collinear Laser Spectroscopy of radionuclides

January 11, 2020





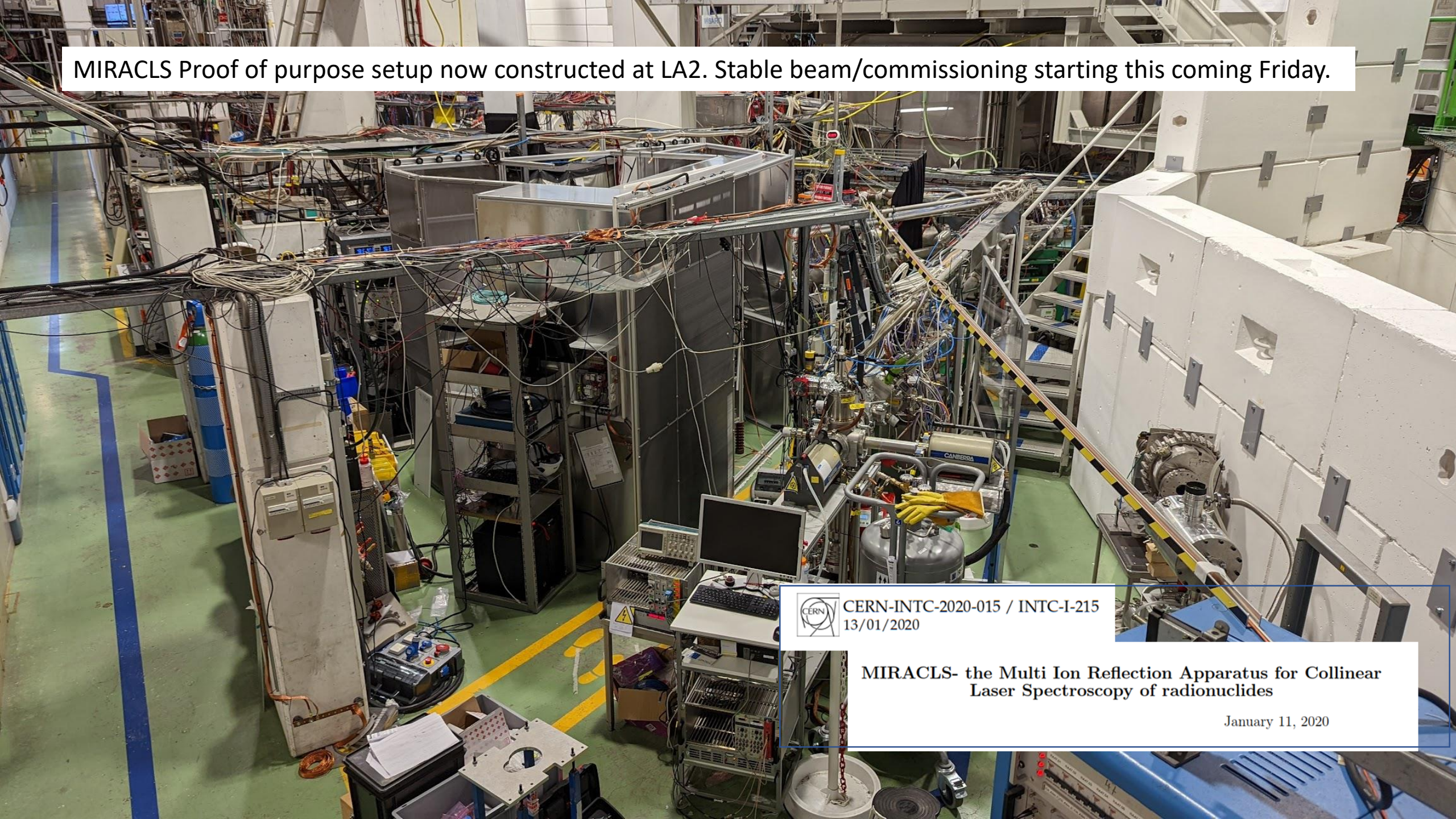
Miniball installation is ongoing: main issue is the DAQ

New Mossbauer setup

Now ready for stable beam commissioning in July

First online runs foreseen in Autumn/end of year

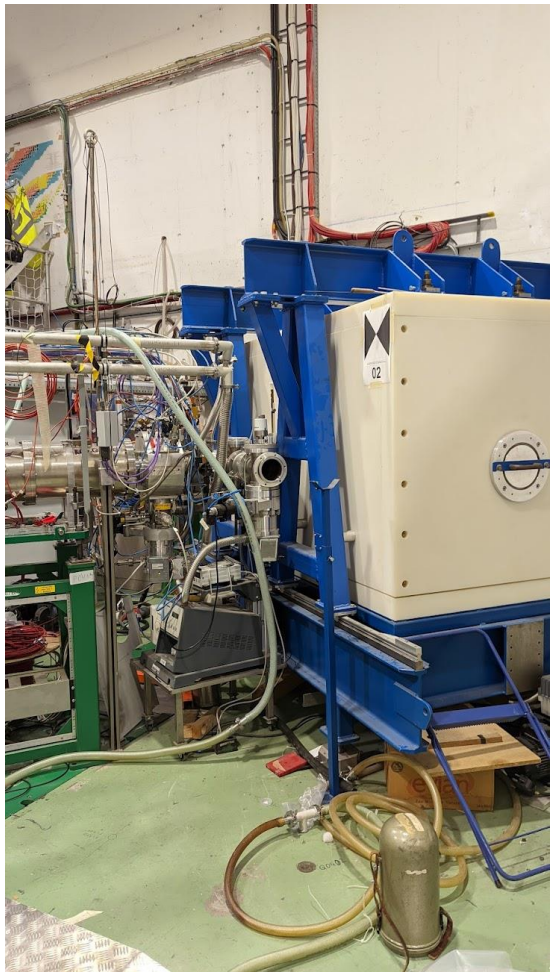
MIRACLS Proof of purpose setup now constructed at LA2. Stable beam/commissioning starting this coming Friday.



CERN-INTC-2020-015 / INTC-I-215
13/01/2020

MIRACLS- the Multi Ion Reflection Apparatus for Collinear Laser Spectroscopy of radionuclides

January 11, 2020



TAS now upgraded:
experiment next week.
Some commissioning this weekend (along with MIRACLS)

CERN-INTC-2020-007 / INTC-I-210
08/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

Upgrade and scientific programme of *LUCRECIA*, the Total Absorption Spectrometer at ISOLDE

Jan - 8th - 2020

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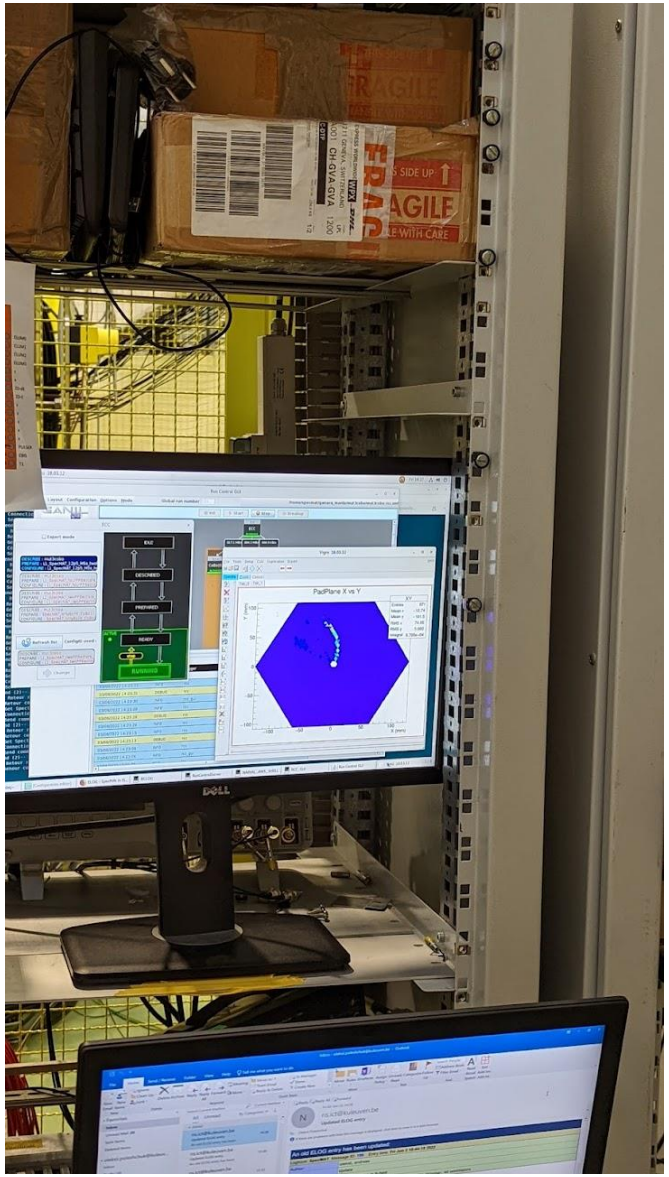
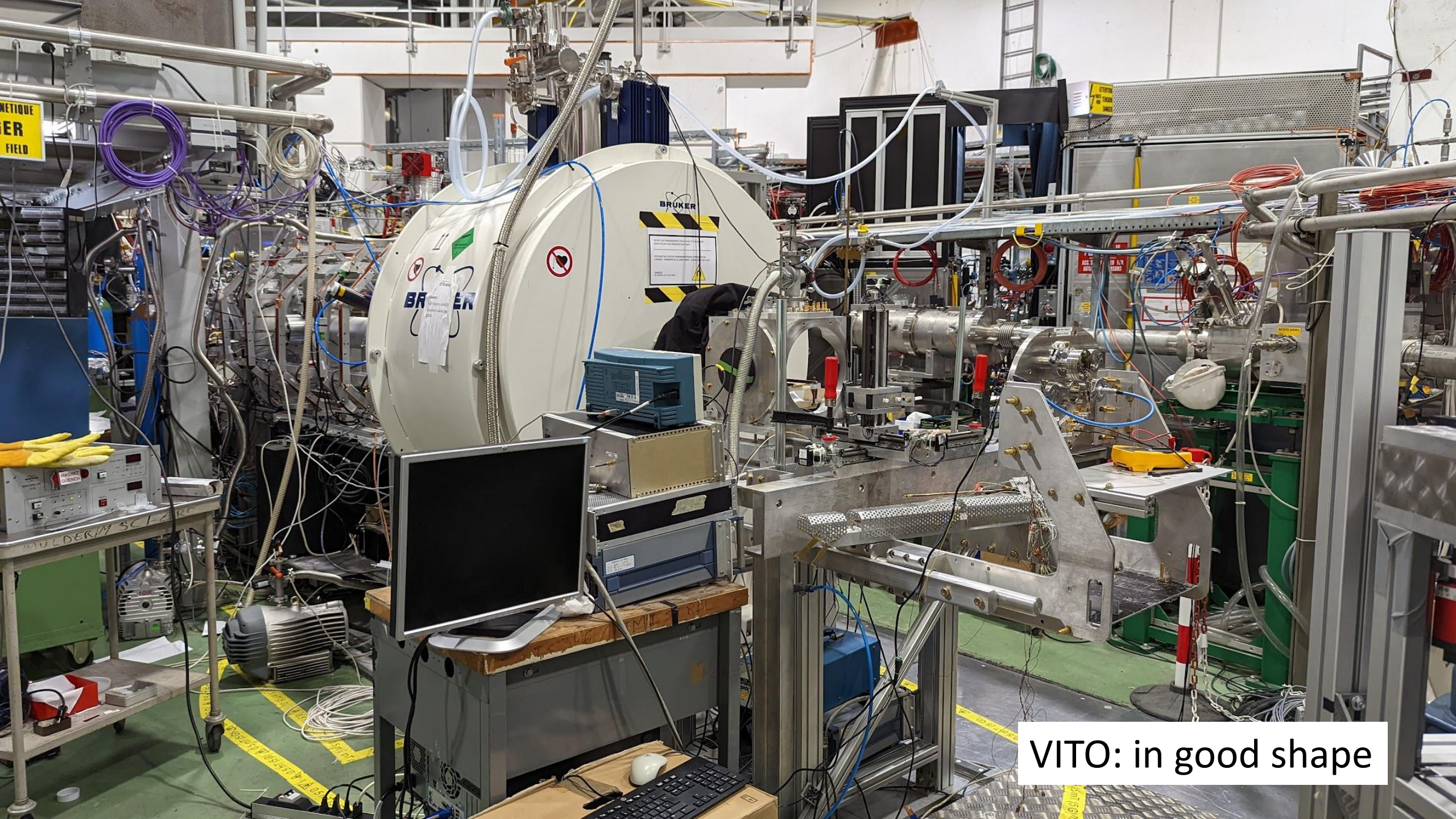
The SpecMAT active target

January 13, 2020




BRUKER
VITO: in good shape


IDS: busy campaign new frame
hopefully in the Autumn

MARIAN GOODMAN GALLERY

→ Inquire

Thomas Struth
Retired Detector, OPAL, CERN, Meyrin 2019, 2019
Inkjet print
Image: 66 7/8 x 92 5/8 in. (170 x 235.3 cm)
Frame: 70 7/8 x 96 1/2 x 2 3/8 in. (180 x 245.1 x 6 cm)
Edition of 6

→ Inquire

Thomas Struth
Decay Station, ISOLDE, CERN, Meyrin 2019, 2019
Inkjet print
Image: 59 7/8 x 122 7/8 in. (152 x 312.2 cm)
Frame: 63 3/4 x 126 7/8 x 2 3/8 in. (161.8 x 322.2 x 6 cm)
Edition of 6

→ Inquire

Thomas Struth

Upgrade of electrical outlets in 275 building will start in July. (following safety recommendations and from consolidation budget).

- Multipac now delivered to B 275
- Commissioning work will start soon.
- Where can this be eventually housed?
- Perhaps possibility in 508 labs once the upgrade of PAC machines has been completed in 2023.
- (impossible to run with radioactive samples in B 275)

CERN-INTC-2020-011 / INTC-I-212
10/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

MULTIPAC-Setup for γ–γ Perturbed Angular Correlation Experiments in Multiferroic (and Magnetic) Materials

January 8th 2020

CERN-INTC-2020-003 / INTC-I-209
08/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

PUMA: antiProton Unstable Matter Annihilation

January 6, 2020

First meeting PUMA@ISOLDE

Wednesday 1 Jun 2022, 15:00 → 16:30 Europe/Zurich

508/1-001 (CERN)

Videoconference — First meeting PUMA@ISOLDE — Please log in

There are minutes attached to this event. Show them.

15:00 → 15:10 **Introduction** ¶ — 10m
Speakers: Oliver Aberle (CERN), Erwin Siesling (CERN)

15:10 → 15:30 **PUMA - An overview** — 20m
Speaker: Alexandre Obertelli
PUMA_ISOLDE_Jun...

15:30 → 15:50 **Discussion on project structure** — 20m
PUMA@ISOLDE PM... PUMA@ISOLDE PM...

15:50 → 16:10 **Miracls** — 20m
Speaker: Stephan Malbrunot (CERN)
PUMAmeeting_202...

3.2-pre

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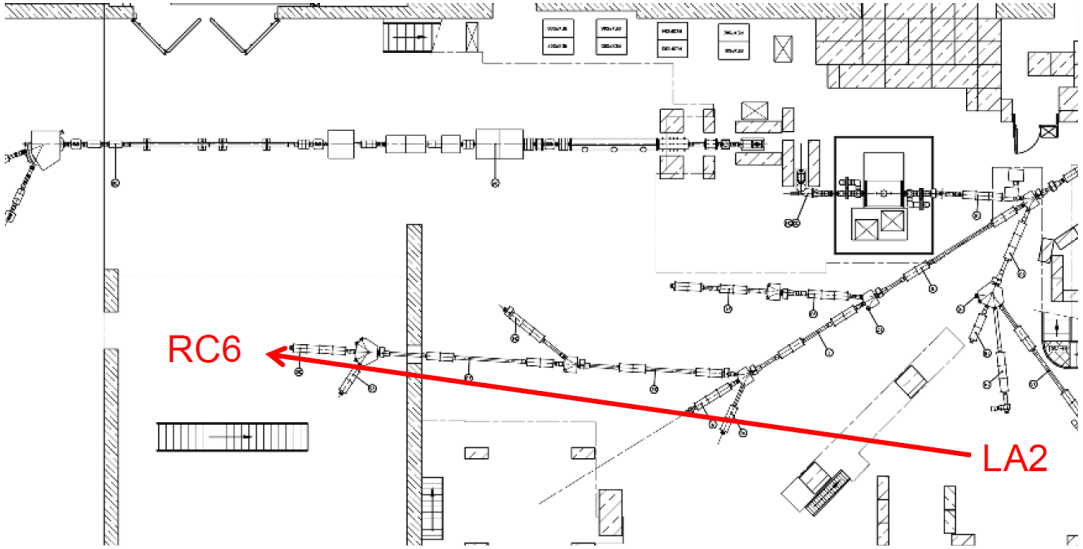
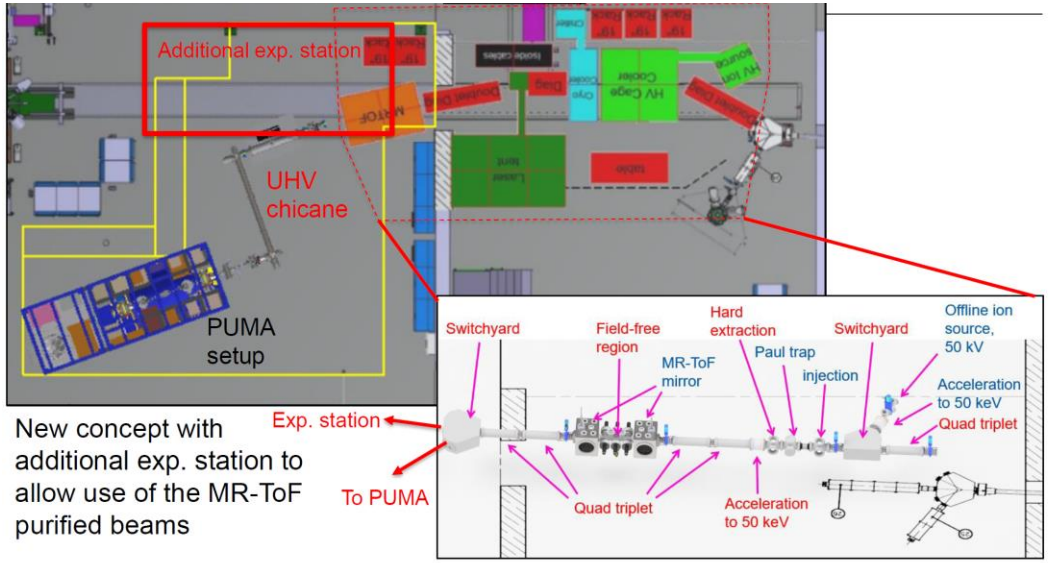
Relocation MIRACLS: 2022 – early 2023





New concept with additional exp. station to allow use of the MR-ToF purified beams

Operational aspects: ISOLDE Collaboration, EP

CERN-INTC-2020-001 / INTC-I-208
06/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

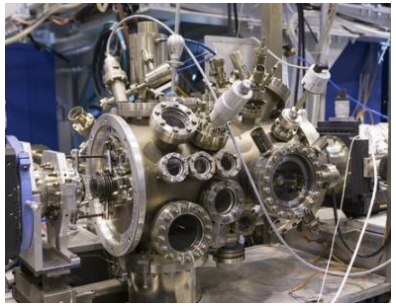
Upgrade of the UHV-system ASPIC for the investigation of surfaces and two-dimensional materials by ultra-low energy implantation and deposition of radioactive probe atoms

[6.01.2020]

ASPIC (or first part) will come in 2023. No permanent home yet. Could be initially run from LA1

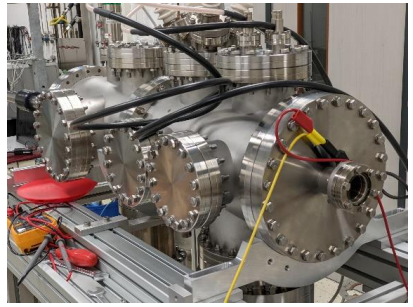
ASPIC

Surface/interface
Modification & characterization



ASCII

Ultra-low energy implanation
Control of probe isotopes



CERN-INTC-2020-008 / INTC-I-211
08/01/2020

Letter of Intent to the ISOLDE and Neutron Time-of-Flight Committee

eMMA - Development of an emission Mössbauer apparatus at ISOLDE for the investigation of magnetic materials

[8.01.2020]

Unclear where this can be accommodated

Comments

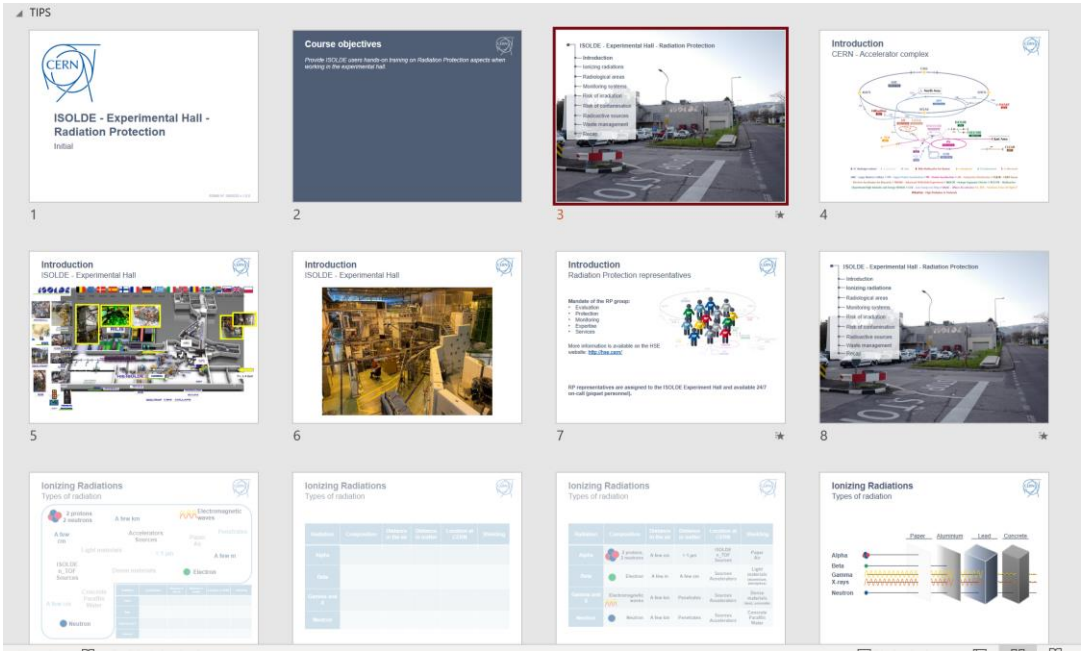
- Some new equipment being prepared for ISOLDE but little or no support staff, particularly BMBF-funded projects (at least in SSP)
- ISCC and/or INTC may need more involvement in some of these projects.

Training

- In addition to the (ever-growing) number of online courses…
- Hands-on RP and Electrical training
- 15 day deadline before scheduled course is cancelled. (has led to issues last year)

- New EP-wide electrical course for all users/staff who need to work in an experimental area (legal requirement)
- Both will take place on Tuesday but time has increased:
  - EP course 0830 till 1230
  - RP course 1400 till 1630
- Availability of Electrical course not very stable. **Taking all online courses will grant electrical training ranks (for the moment at least).** Long term users based at CERN should try to take it when possible.

Ad hoc sessions are available, but (especially in running period!!) are difficult to manage



In LMS:

ISOLDE - Experimental Hall - Radiation Protection - Handling (Covid-19)

Electrical Safety - Working in EP experiments

Discussion with safety training ongoing to see if the hands-on sessions are still required for the majority of users (RP)

For laser users: new LSSO (laser safety officer) course will need to be followed and be appointed for local representatives of laser labs.