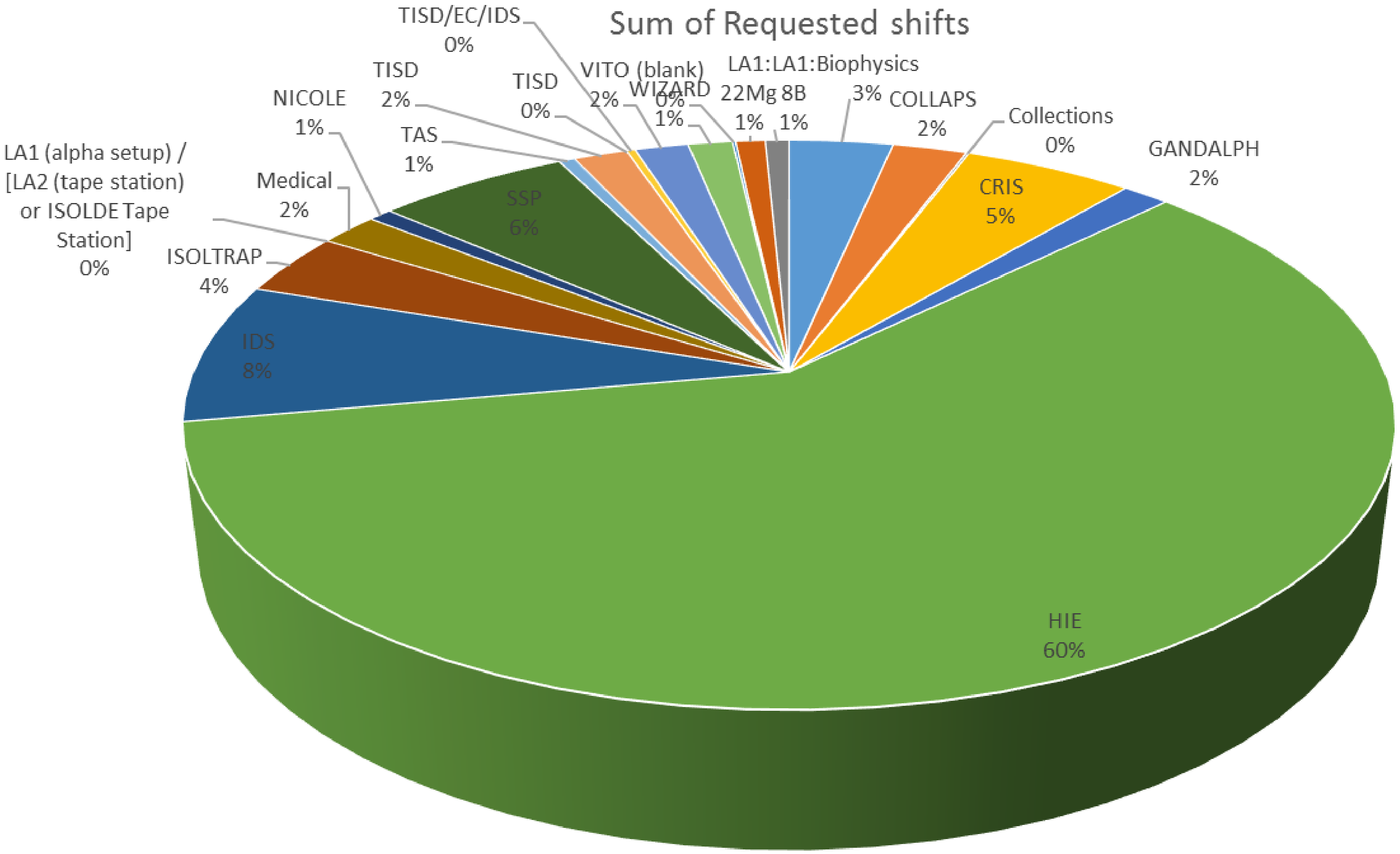
ISOLDE physics coordinator report: ISCC 6th November 2018

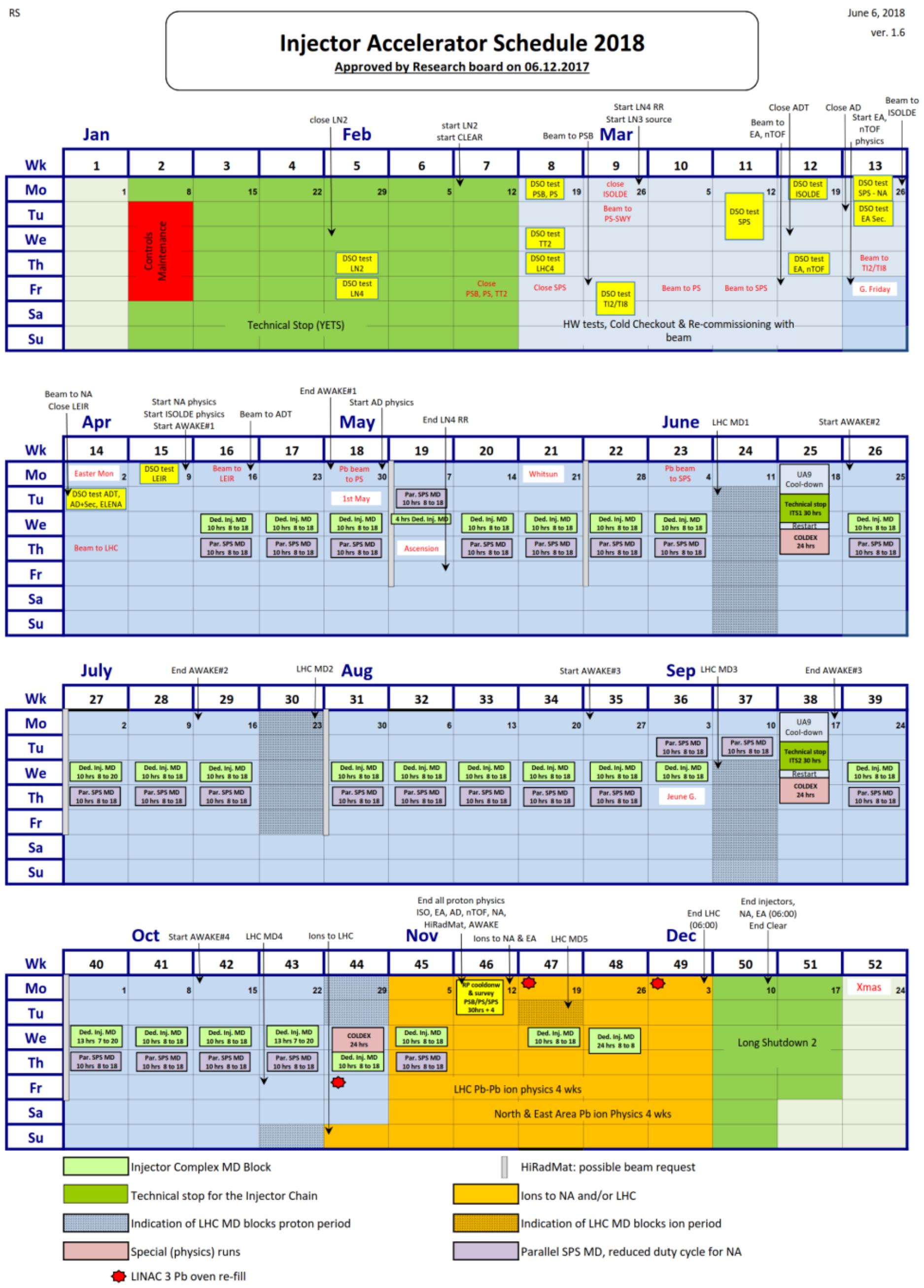
Karl Johnston

- Summary of 2018: proton and winter physics schedules
- Safety/training
- Technicians
- Publications

Summary of beam requests 2018



Row Labels	Sum of Requested shifts
Biophysics	35
COLLAPS	25
Collections	1
CRIS	57
GANDALPH	16
HIE	629.5
IDS	84.501
ISOLTRAP	38
Medical	20
NICOLE	8
SSP	65
TAS	5.5
TISD	18
TISD	0
TISD/EC/IDS	3
VITO	18
WIZARD	15
(blank)	1
LA1: 22Mg	10
LA1: 8B	8
Grand Total	**1057.501**



Protons available for physics to ISOLDE from 9th April – 12th November 2018.
(no extension possible)
1 week less physics with protons than 2017
217 days compared to 224

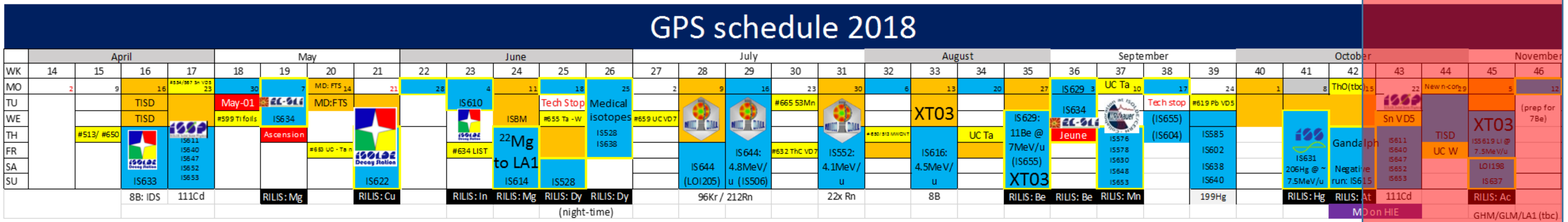
HIE ISOLDE was ready from 9th July after 90 days of LE physics

HIE: Started with a Coulomb excitation block then focused on the reaction experiments
More setup time often needed for these plus more varied setups.
All three HIE beamlines in use e.g. ISS calibrating/commissioning while Miniball ran CE, installations ongoing at XT03.

Low energy runs allowed for some breathing space (and exchange of EBIS cathode). To allow for best use of machine, some experiments ran in parallel/invisible mode e.g. Solid state physics: one dedicated run in 2018 i.e. blocking CBL and with new target.

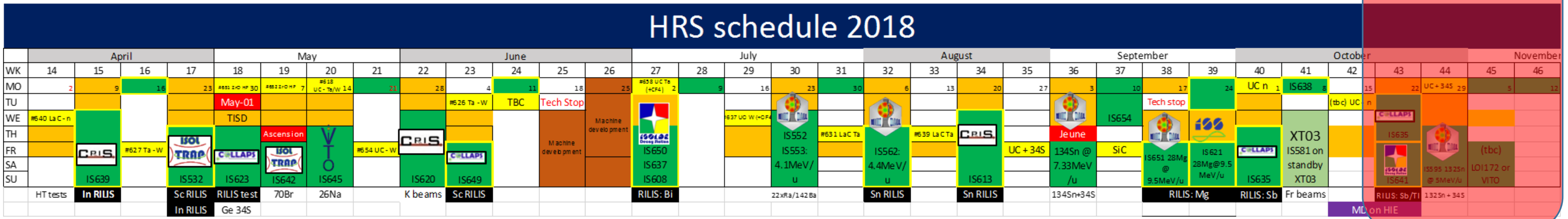
Focus on LOIS at end of year: looking forward…. Winter physics programme to start in Week 46 for HIE (x2) and CRIS

ISOLDE Schedule 2018: weeks 15 – 46



W45/46 Provisional period: tbc

Final weeks were provisional: in the end too tight; molecular Sn for HIE had to be cancelled.



Target change	CERN holiday	Setting up/proton scan/yield	Physics GPS	Physics HRS	RILIS run

KJ: 30.08.18

Final ISOLDE schedule

2
1
2

GPS schedule 2018

	April				May				June					July		
WK	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
MO	9	16	#534/567 Sn VD5 23	30	7	MD: FTS 14	21	28	4	11	18	25	2	9	16	23
TU		TISD		May-01		MD:FTS			IS610		Tech Stop	Medical isotopes				#665 53Mn
WE		TISD		#599 Ti foils	IS634					ISBM	#655 Ta - W		#659 UC VD7			
TH	#513/ #650		IS611		Ascension					^{22}Mg to		IS528				
FR			IS640			#653 UC-Ta n			#634 LIST	LA1		IS638			IS644:	#632 ThC VD7
SA			IS647 IS652											IS644	4.8MeV/	
SU		IS633	IS653				IS622			IS614	IS528			(LOI205)	u (IS506)	
		8B: IDS	111Cd		RILIS: Mg		RILIS: Cu		RILIS: In	RILIS: Mg	RILIS: Dy	RILIS: Dy		96Kr / 212Rn		
											(night-time)					

	July	August				September				October				November	
WK	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
MO	30	6	13	20	27	IS629 3	#641 UC Ta 10	17	24	1	8	#633Th 15	22	#638 UCW 29	5	p^+ off 0600 12
TU								Tech stop	#619 Pb VD5							Prep for
WE					IS629:	IS634		(IS655)					#534 Sn VD5			winter
TH		#650/513 MWCNT	XT03	#635 UC Ta	11Be @	Jeune		(IS604)	IS585						(IS655)	Physics
FR	IS552:		IS616:		7MeV/u		IS576 IS578		IS602			Gandalph	IS611 IS640	XT03		(separate file)
SA	4.1MeV/		4.5MeV/		(IS655)		IS630 IS648		IS638		IS631 206Hg @ ~	Negative	IS647 IS652	IS561 9Li @	LOI198	
SU	u		u		XT03		IS653		IS640		7.5MeV/u	run: IS615	IS653	7.5MeV/u	IS637	
	22x Rn		8B		RILIS: Be	RILIS: Be	RILIS: Mn		199Hg		RILIS: Hg	RILIS: At	111Cd		RILIS: Ac	
												MD on HIE			(GLM/GHM/LA1)	

HRS schedule 2018

	April				May				June					July		
WK	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
MO	9	16	23	#651 ZrO HP 30	#652 ZrO HP 7	#618 UC-Ta/W 14	21	28	4	11	18	25	#658 UC Ta (+CF4) 2	9	16	23
TU				May-01					#626 Ta - W	TBC	Tech Stop					
WE				TISD								Machine development			#637 UC W (+CF4	
TH					Ascension						Machine development					IS552
FR		#627 Ta -W					#654 UC - W						IS650			IS553:
SA													IS637			4.1MeV/
SU	IS639		IS532	IS623	IS642	IS645		IS620	IS649				IS608			u
	In RILIS		Sc RILIS	RILIS test	70Br	26Na		K beams	Sc RILIS				RILIS: Bi			22xRa/142Ba
	(#640 LaC - n)		In RILIS	Ge 34S												

	July	August				September				October				November	
WK	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
MO	30	6	13	20	27	3	10	17	24	#662 UC n 1	IS638 8	15	22	#642 UC n(ew)-conv	TISD 5	p^+ off 0600 12
TU								Tech stop				(tbc) UC		TISD	TISD	Prep for
WE							IS654								#672 CaO VD7	winter
TH	#631 LaC Ta		#639 LaC Ta			Jeune						tuning IDS	IS645			Physics
FR		IS562:			#643 UC+34S	134Sn @	#623 SiC	IS651 28Mg	IS621			VITO	IS641			(separate file)
SA		4.4MeV/				7.33MeV		@	28Mg@9.5						WISArD	
SU		u		IS613		/u		9.5MeV/u	MeV/u	IS635			(end Sat night)		LOI172	
		Sn RILIS		Sn RILIS		134Sn+34S		RILIS: Mg		RILIS: Sb			RILIS: Tl		RILIS: for TISD	
												MD on HIE				

Target change	CERN holiday	Setting up/proton scan/yield	Physics GPS	Physics HRS	RILIS run

KJ: 08.10.18

GPS schedule 2018

WK	Month	MO (date)	Entries	RILIS / beams
15	April	9	#513/ #650	
16		16	TISD; TISD; IS633	8B: IDS
17		#534/567 Sn VD5 23	IS611 IS640 IS647 IS652 IS653	111Cd
18		30	May-01; #599 Ti foils	
19	May	7	IS634; Ascension	RILIS: Mg
20		MD: FTS 14	MD:FTS; #653 UC-Ta n	
21		21	IS622	RILIS: Cu
22		28		
23	June	4	IS610; #634 LIST	RILIS: In
24		11	ISBM; ^{22}Mg to LA1; IS614	RILIS: Mg
25		18	Tech Stop; #655 Ta - W; IS528	RILIS: Dy (night-time)
26		25	Medical isotopes IS528 IS638	RILIS: Dy
27		2	#659 UC VD7	
28	July	9	IS644 (LOI205)	96Kr / 212Rn
29		16	IS644: 4.8MeV/u (IS506)	
30		23	#665 53Mn; #632 ThC VD7	
31		30	IS552: 4.1MeV/u	22x Rn
32		6	#650/513MWCNT	
33	August	13	XT03; IS616: 4.5MeV/u	8B
34		20	#635 UC Ta	
35		27	IS629: 11Be @ 7MeV/u (IS655); XT03	RILIS: Be
36		IS629 3	IS634; Jeune	RILIS: Be
37	September	#641 UC Ta 10	IS576 IS578 IS630 IS648 IS653	RILIS: Mn
38		17	Tech stop; (IS655) (IS604)	
39		24	#619 Pb VD5; IS585 IS602 IS638 IS640	199Hg
40		1		
41	October	8	IS631 206Hg @ ~ 7.5MeV/u	RILIS: Hg
42		#633Th 15	Gandalph; Negative run: IS615	RILIS: At; MD on HIE
43		22	#534 Sn VD5; IS611 IS640 IS647 IS652 IS653	111Cd
44		#638 UCW 29	XT03; IS561 9Li @ 7.5MeV/u	
45		5	(IS655); LOI198; IS637	RILIS: Ac (GLM/GHM/LA1)
46	November	p+ off 0600 12	Prep for winter Physics (separate file)	

Cu FT
In FT
Bi FT/in-source
Tl/Hg SPEDE

Sc/In
70Br

n-def In
n-rich K
n-def Sn

Ge + S
Sc
n-rich Sb

Medical Biophysics

119Sb for biopac
149Tb/152Tb
199Hg
Ac beam development

β-NMR on liquids

Parallel Hg/Cd

Mg,Be
Mn, Ac

Good Mn run

Travelling

8B @ LA1
22Mg @ LA1
Ac development
(2 setups)
GANDALPH (-ve)

TISD/MD

-ve beams
LIST
New n-conv
RFQ MD
HIE MD
FTS commissioning
(no LIEBE)

Later….

XT03

HRS schedule 2018

WK	Month	MO (date)	Entries	RILIS / beams
15	April	9	IS639	In RILIS; (#640 LaC - n)
16		16	#627 Ta - W	
17		23	IS532	Sc RILIS; In RILIS
18		#651 ZrO HP 30	May-01; TISD; IS623	RILIS test; Ge 34S
19	May	#652 ZrO HP 7	Ascension; IS642	70Br
20		#618 UC-Ta/W 14	IS645	26Na
21		21	#654 UC - W	
22		28	IS620	K beams
23	June	4	#626 Ta - W; IS649	Sc RILIS
24		11	TBC	
25		18	Tech Stop; Machine development	
26		25	Machine development	
27		#658 UC Ta (+CF4) 2	IS650 IS637 IS608	RILIS: Bi
28	July	9		
29		16	#637 UC W (+CF4)	
30		23	IS552 IS553: 4.1MeV/u	22xRa/142Ba
31		30	#631 LaC Ta	
32		6	IS562: 4.4MeV/u	Sn RILIS
33	August	13	#639 LaC Ta	
34		20	IS613	Sn RILIS
35		27	#643 UC+34S	
36		3	Jeune; 134Sn @ 7.33MeV/u	134Sn+34S
37	September	10	IS654; #623 SiC	
38		17	Tech stop; IS651 28Mg @ 9.5MeV/u	RILIS: Mg
39		24	IS621 28Mg@9.5 MeV/u	
40		#662 UC n 1	IS635	RILIS: Sb
41	October	IS638 8		
42		15	(tbc) UC; tuning IDS VITO	MD on HIE
43		22	IS645; IS641 (end Sat night)	RILIS: Tl
44		#642 UC n(ew)-conv	TISD	
45		TISD 5	TISD; #672 CaO VD7; WISArD LOI172	RILIS: for TISD
46	November	p+ off0600 12	Prep for winter Physics (separate file)	

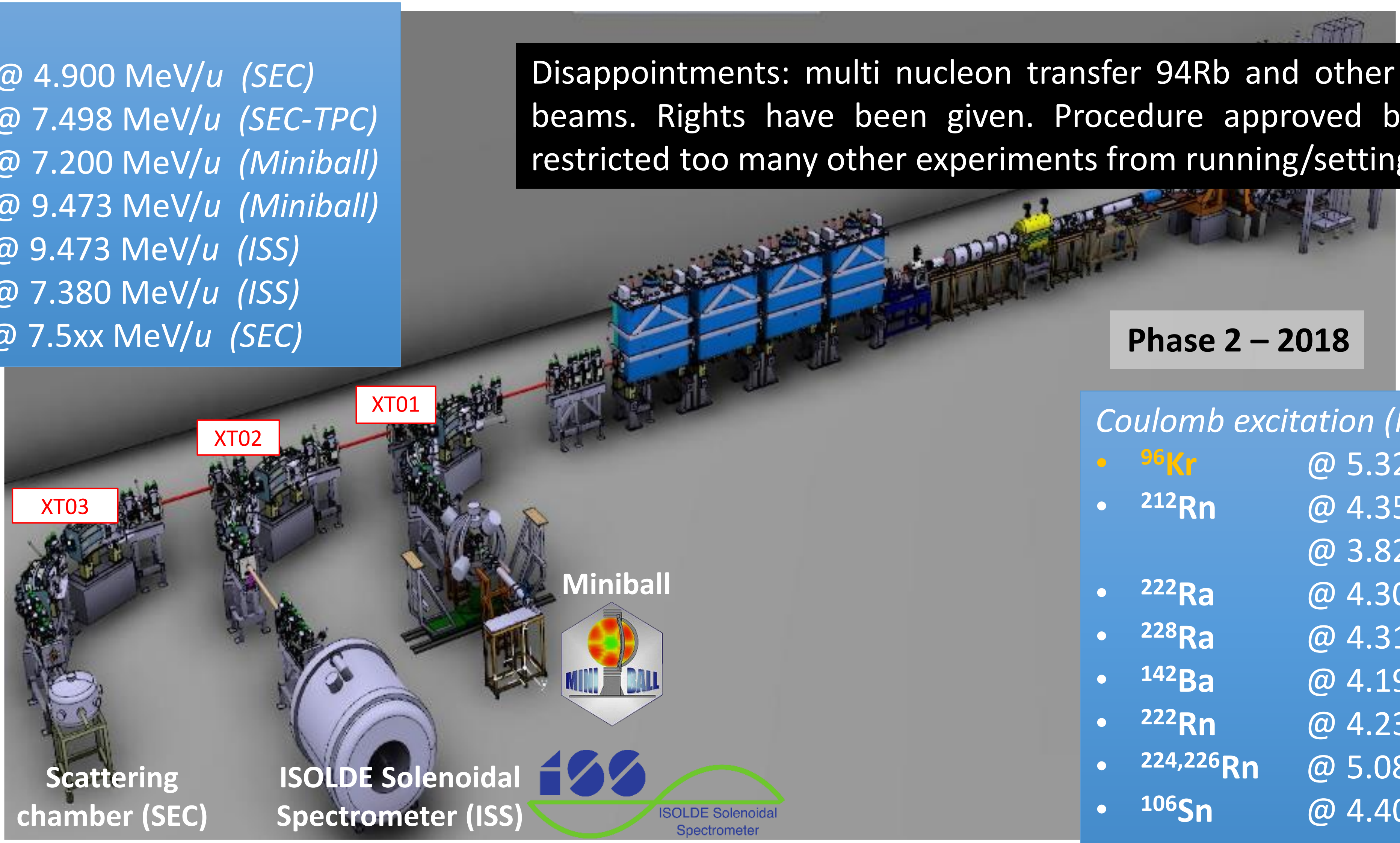
HIE-ISOLDE EXPERIMENTS 2018

reaching 9.5 MeV/u with HIE-ISOLDE

Reactions:

- ^{8}**B**(^{64}Zn) @ 4.900 MeV/u *(SEC)*
- ^{11}**Be**(decay) @ 7.498 MeV/u *(SEC-TPC)*
- ^{132,134}**Sn**(*d,p*) @ 7.200 MeV/u *(Miniball)*
- ^{28}**Mg**(*t,p*) @ 9.473 MeV/u *(Miniball)*
- ^{28}**Mg**(*d,p*) @ 9.473 MeV/u *(ISS)*
- ^{206}**Hg**(*d,p*) @ 7.380 MeV/u *(ISS)*
- ^{9}**Li**(*t,p*) @ 7.5xx MeV/u *(SEC)*

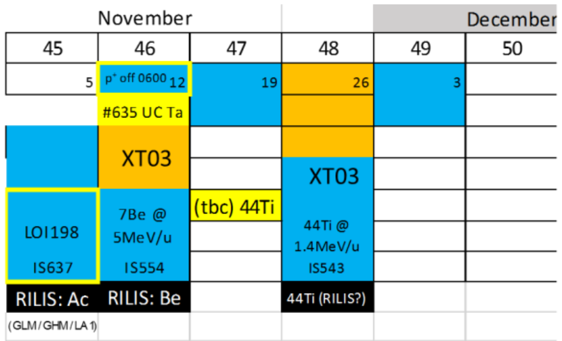
Disappointments: multi nucleon transfer 94Rb and other strong primary beams. Rights have been given. Procedure approved but would have restricted too many other experiments from running/setting up in 2018.



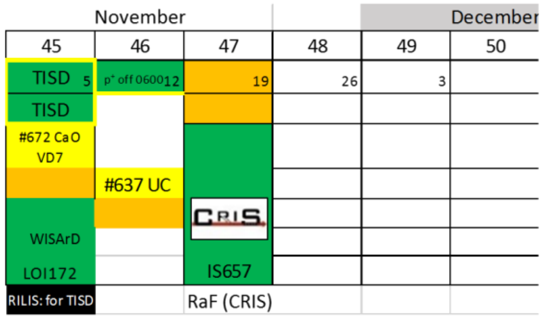
Coulomb excitation (Miniball):

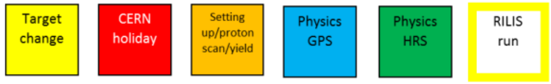
- ^{96}**Kr** @ 5.325 MeV/u
- ^{212}**Rn** @ 4.355 MeV/u
  @ 3.824 MeV/u
- ^{222}**Ra** @ 4.305 MeV/u
- ^{228}**Ra** @ 4.310 MeV/u
- ^{142}**Ba** @ 4.190 MeV/u
- ^{222}**Rn** @ 4.230 MeV/u
- ^{224,226}**Rn** @ 5.080 MeV/u
- ^{106}**Sn** @ 4.404 MeV/u

GPS



HRS





KJ: 26.10.18

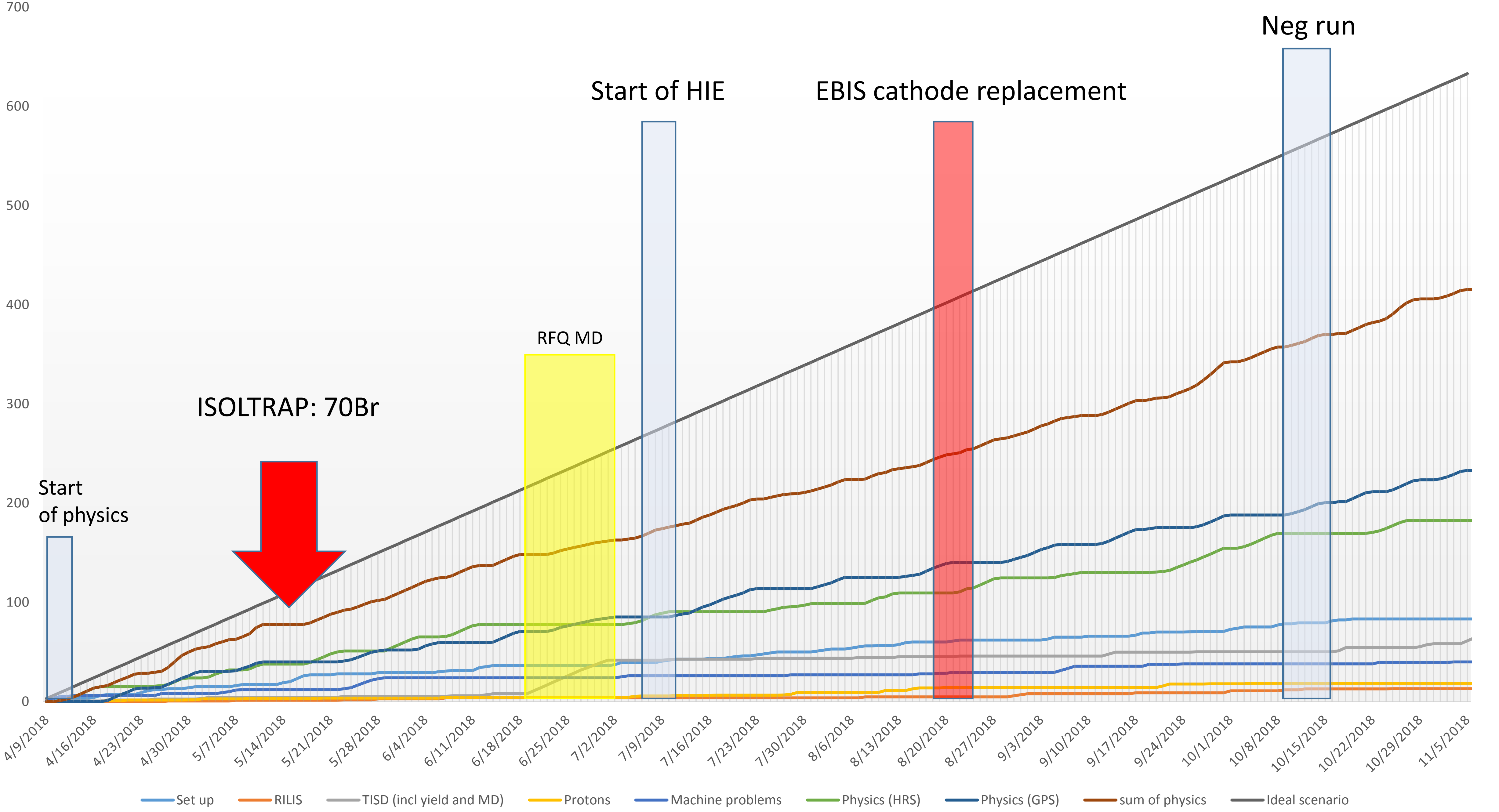
Winter physics programme:

7Be @ 5MeV/u to XT03 (similar setup to recently used 9Li run)
Target irradiated in past weeks (cold). Be mass marker.

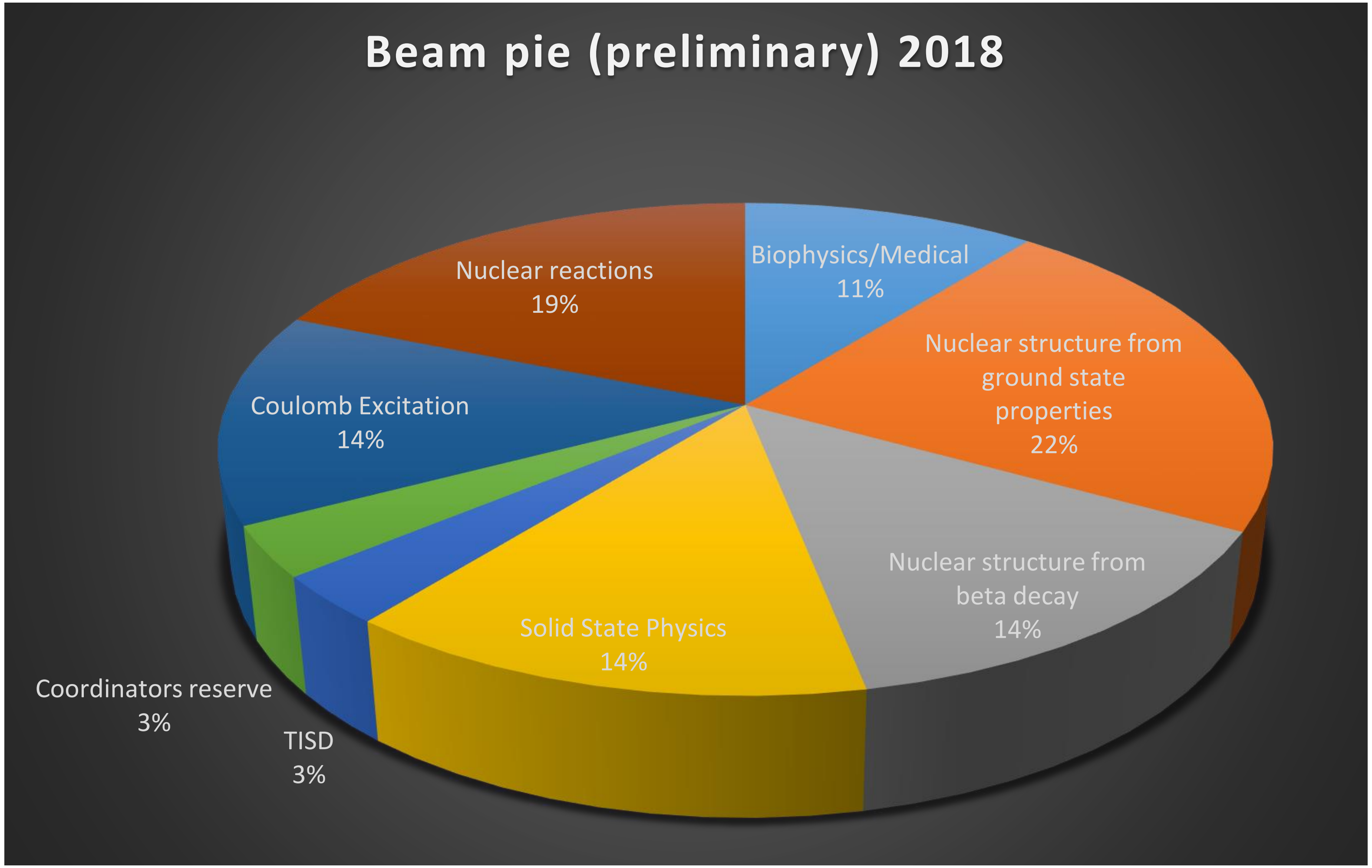
RaF for CRIS: target with CF4 leak irradiated at MEDICIS.

44TI for Edinburgh chamber (similar to 59Cu in 2017). Planning ongoing with PSI for importation of material.

In addition some emittance test requestd by MIRACLS on both HRS and GPS.

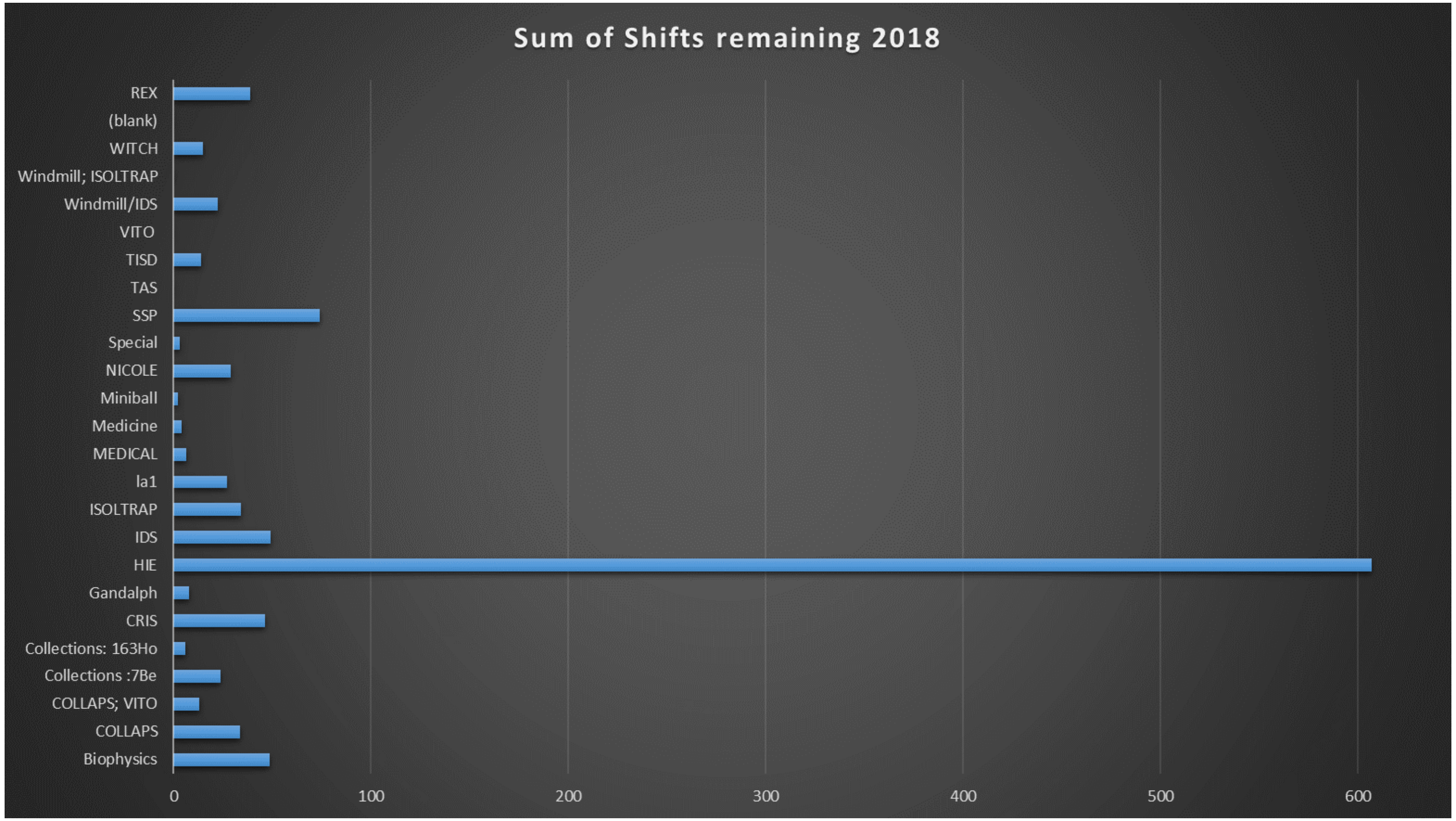


Neg run
Start of HIE
EBIS cathode replacement
RFQ MD
ISOLTRAP: 70Br
Start
of physics
700
600
500
400
300
200
100
0
4/9/2018
4/16/2018
4/23/2018
4/30/2018
5/7/2018
5/14/2018
5/21/2018
5/28/2018
6/4/2018
6/11/2018
6/18/2018
6/25/2018
7/2/2018
7/9/2018
7/16/2018
7/23/2018
7/30/2018
8/6/2018
8/13/2018
8/20/2018
8/27/2018
9/3/2018
9/10/2018
9/17/2018
9/24/2018
10/1/2018
10/8/2018
10/15/2018
10/22/2018
10/29/2018
11/5/2018
Set up
RILIS
TISD (incl yield and MD)
Protons
Machine problems
Physics (HRS)
Physics (GPS)
sum of physics
Ideal scenario



Setup	Count of Delivered 2018	Sum of Delivered 2018
Biophysics	4	31
COLLAPS	3	35.5
COLLAPS; VITO		
Collections :7Be		
Collections: 163Ho		
CRIS	3	39
Gandalph	1	9
HIE	11	139.5
IDS	5	43
ISOLTRAP	2	17
la1	1	10
MEDICAL	2	18.5
Medicine		
Miniball		
NICOLE		
REX	1	8
Special		
SSP	13	64.5
TAS		
TISD		
VITO		
Windmill/IDS		
Windmill; ISOLTRAP	1	3
WITCH		
(blank)		
Grand Total	47	418

Row Labels	Sum of Shifts remaining (Feb 2018)	Sum of Delivered 2018	Count of Delivered 2018	Sum of Shifts remaining 2018
Biophysics	79.5	31	4	48.5
COLLAPS	69	35.5	3	33.5
COLLAPS; VITO	13			13
Collections :7Be	24			24
Collections: 163Ho	6			6
CRIS	85.5	39	3	46.5
Gandalph	17	9	1	8
HIE	746.5	139.5	11	607
IDS	92	43	5	49
ISOLTRAP	51	17	2	34
la1	37	10	1	27
MEDICAL	25	18.5	2	6.5
Medicine	4			4
Miniball	2			2
NICOLE	29			29
Special	3			3
SSP	138.5	64.5	13	74
TAS	11.5			0
TISD	14			14
VITO	0			0
Windmill/IDS	22.5			22.5
Windmill; ISOLTRAP	3	3	1	0
WITCH	15			15
(blank)	0			0
REX	47	8	1	39
Grand Total	1535	418	47	1105.5



NOTE: preliminary counting; includes RB recommendation that TAS experiments be closed from INTC-59

Fall 2018 at COLLAPS

Candidate for LIST after LS2? (impossible with present front end)

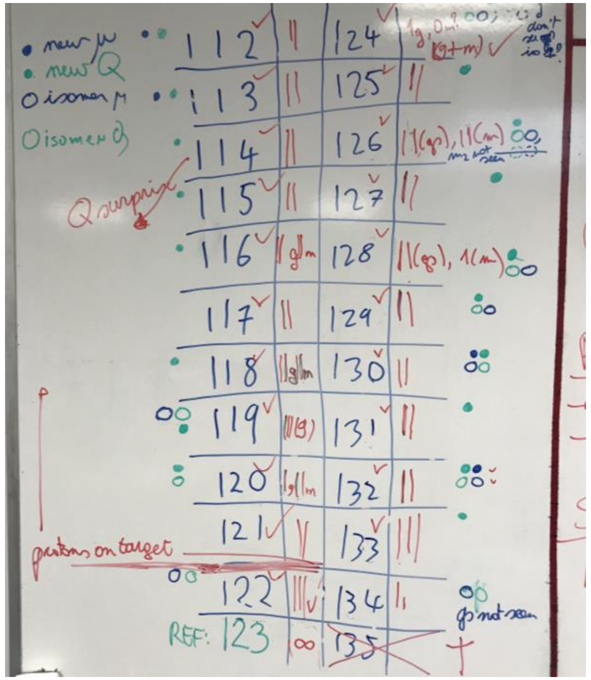
Sb (Z = 51) isotopes across N = 82

✓ $^{112-134}$Sb (N = 61 – 83): **23 isotopes incl. several isomers**

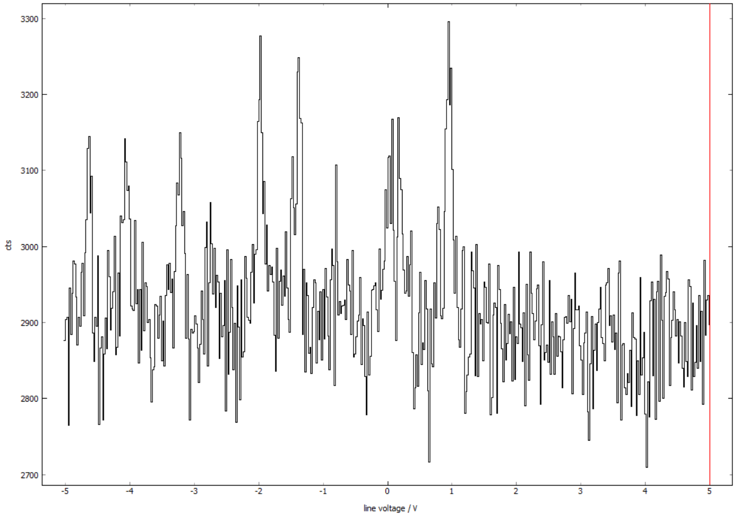
- ☺ Many new moments and radii: large part of physics goal reached
- ☺ Smooth ISOLDE/RILIS operation
- ☹ The interesting ^{135}Sb (probably) out of reach considering the contamination level/available shifts*

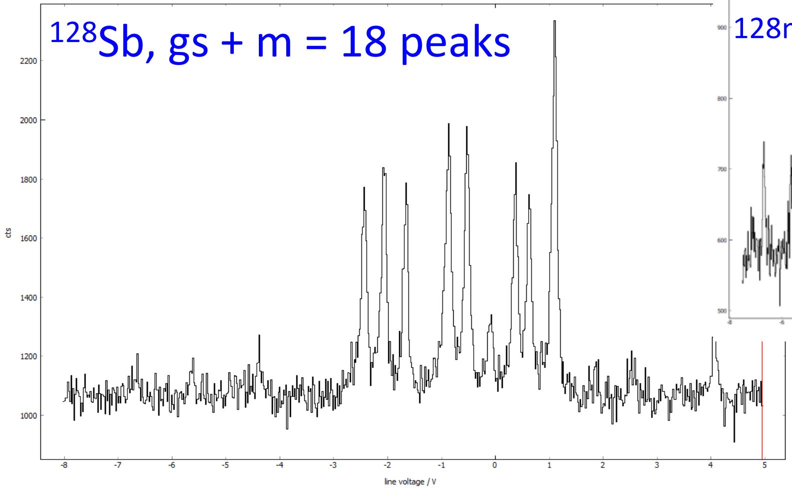
✓ Second element using frequency quadrupling (217 nm)

- 2^{nd} Sb run canceled in favour of the VITO run, compensation with ~2 additional shifts in 1^{st} run

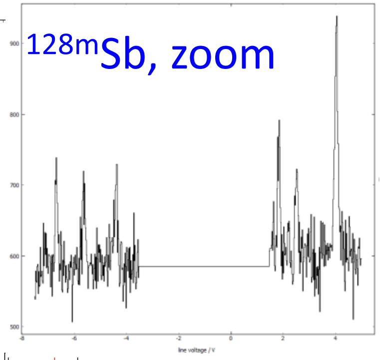


^{134}Sb, ~1 shift of statistics





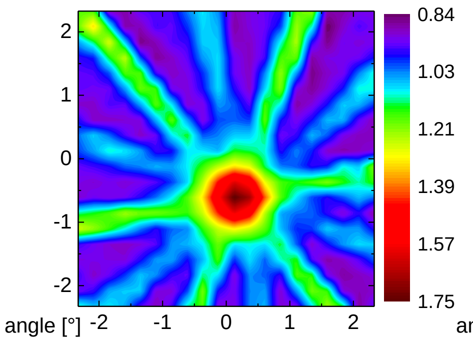
^{128}Sb, gs + m = 18 peaks



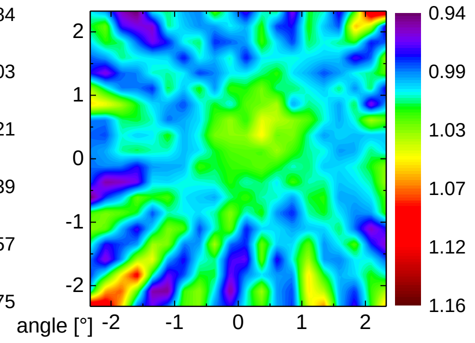
^{128m}Sb, zoom

Emission channeling (EC-SLI)

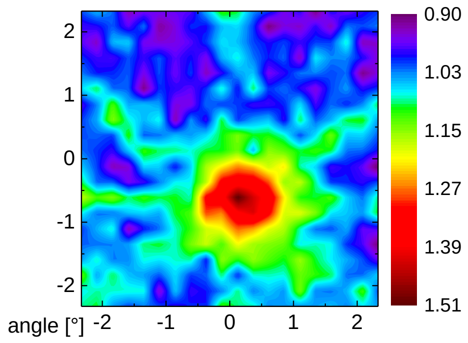
Lattice location of dopant atoms in functional electronic materials



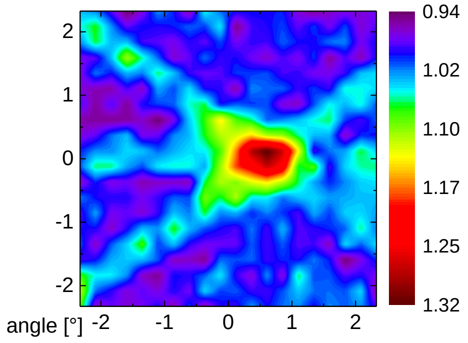
^{27}Mg (Mg RILIS)
in *n*-type GaN
[0001] axis
T = 300 K



^{11}Be (Be RILIS)
in *p*-type GaN
[0001] axis
T = 300 K



^{56}Mn (Mn RILIS)
in $Ge_{0.87}Mn_{0.13}Te$
<110> axis
T = 100 K



^{61}Co (Mn RILIS)
in diamond
<110> axis
T = 300 K

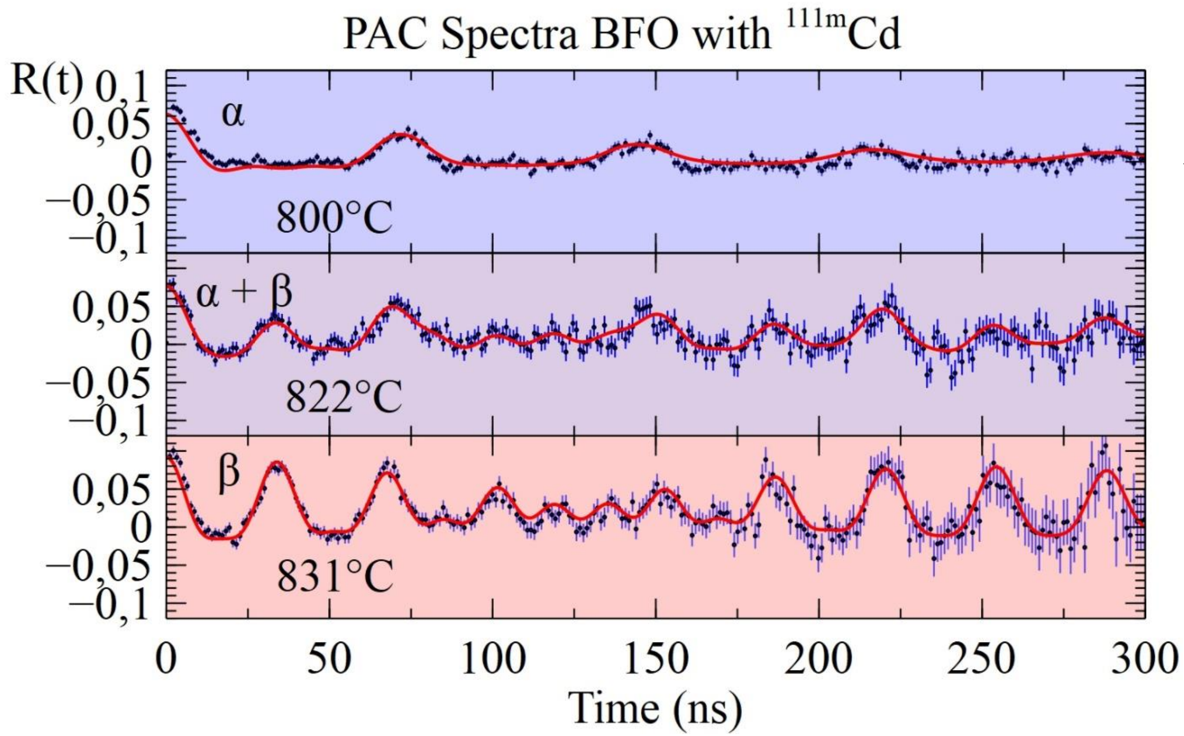
Mg and Be are p-type dopants
in GaN, a *wide-gap semiconductor.*
Continuation of our previous work [1]
Application context: **Optoelectronics**

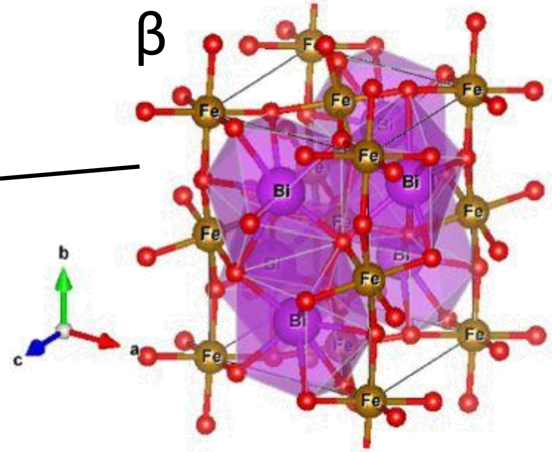
Mn is a magnetic dopant in
$Ge_{1-x}Mn_xTe$, a model
multiferroic Rashba semiconductor.
Application context: **Spintronics**

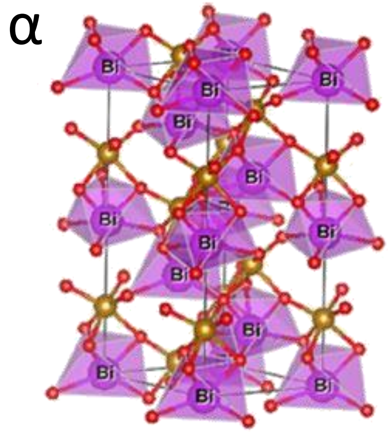
Co in diamond is a potential
single-photon emitter.
Application context:
Quantum information

[1] U. Wahl *et al.*, *Phys. Rev. Lett.* **118**, 095501 (2017)

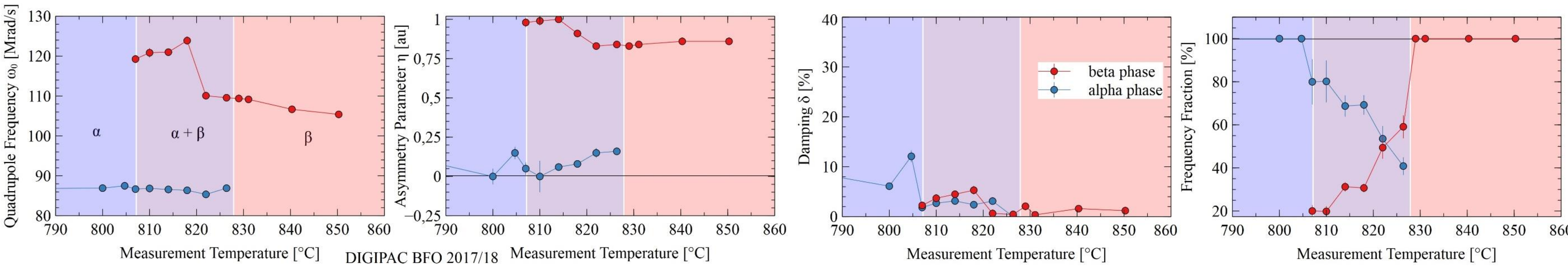
IS647 - Local probing of multiferroic compounds







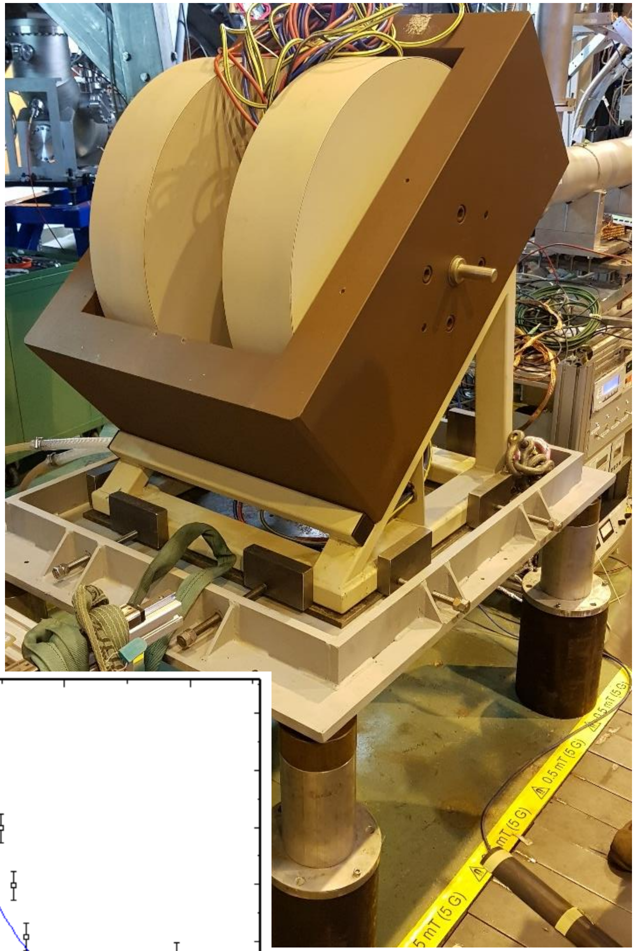
Figures of crystal structure taken from Ceramics International 43 (2017) 1256–1264

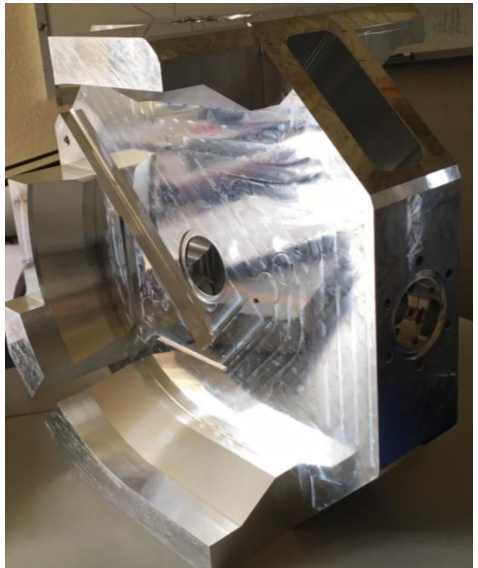


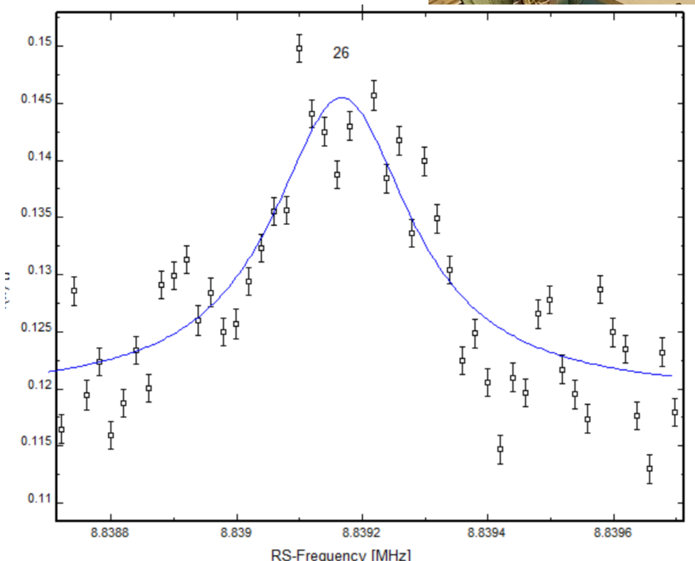
Georg Marschick, Juliana Schell – IS647 collaboration

VITO since last ISCC

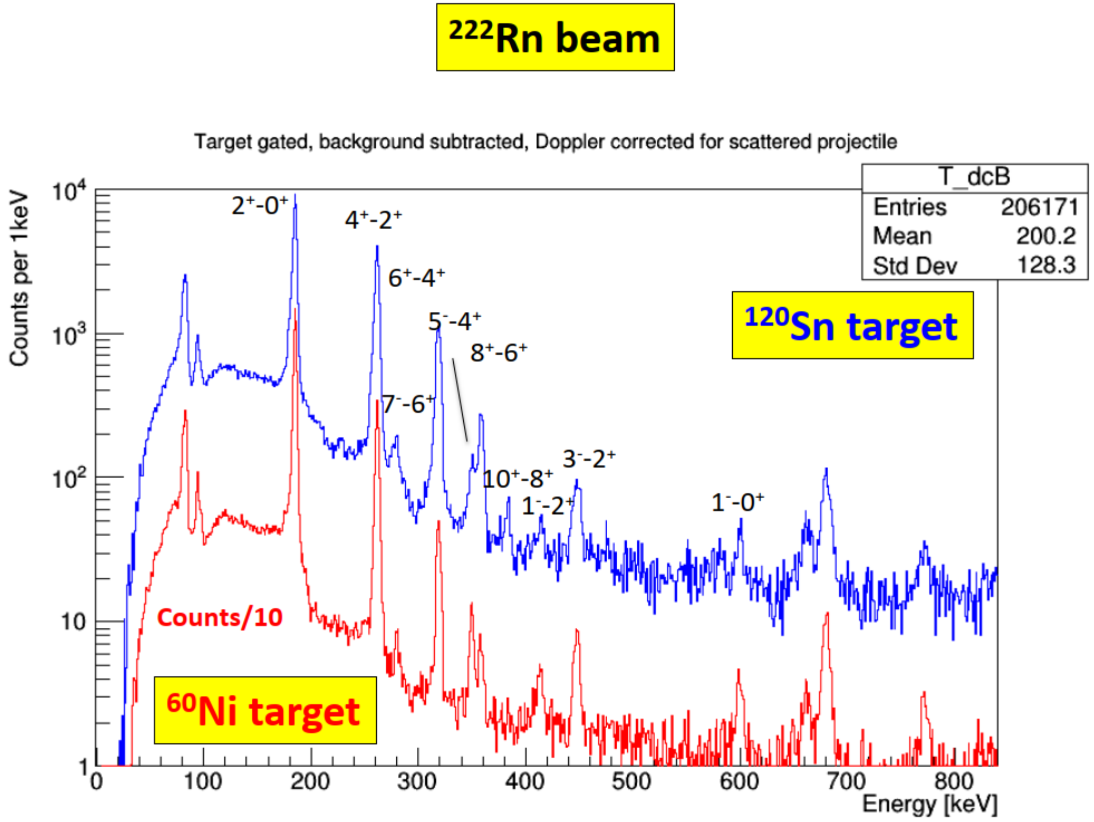
- Work on technical improvements since May beamtime
  - More homogenous, stable, and stronger magnet
  - Fitting NMR chamber
  - Fitting transitional field section
  - New NMR system for field readout and stabilization
- Vacuum tests and NMR studies on new solutions and DNA samples
  - 17ppm shift for DNA G-quadruplex confirmed in a vacuum-compatible solution
- Beamtime 2 weeks ago
  - Very stable and reliable setup
  - many NMR resonances and relaxation-time data of DNA G-quadruplexes and crown-ether solutions in different solvents

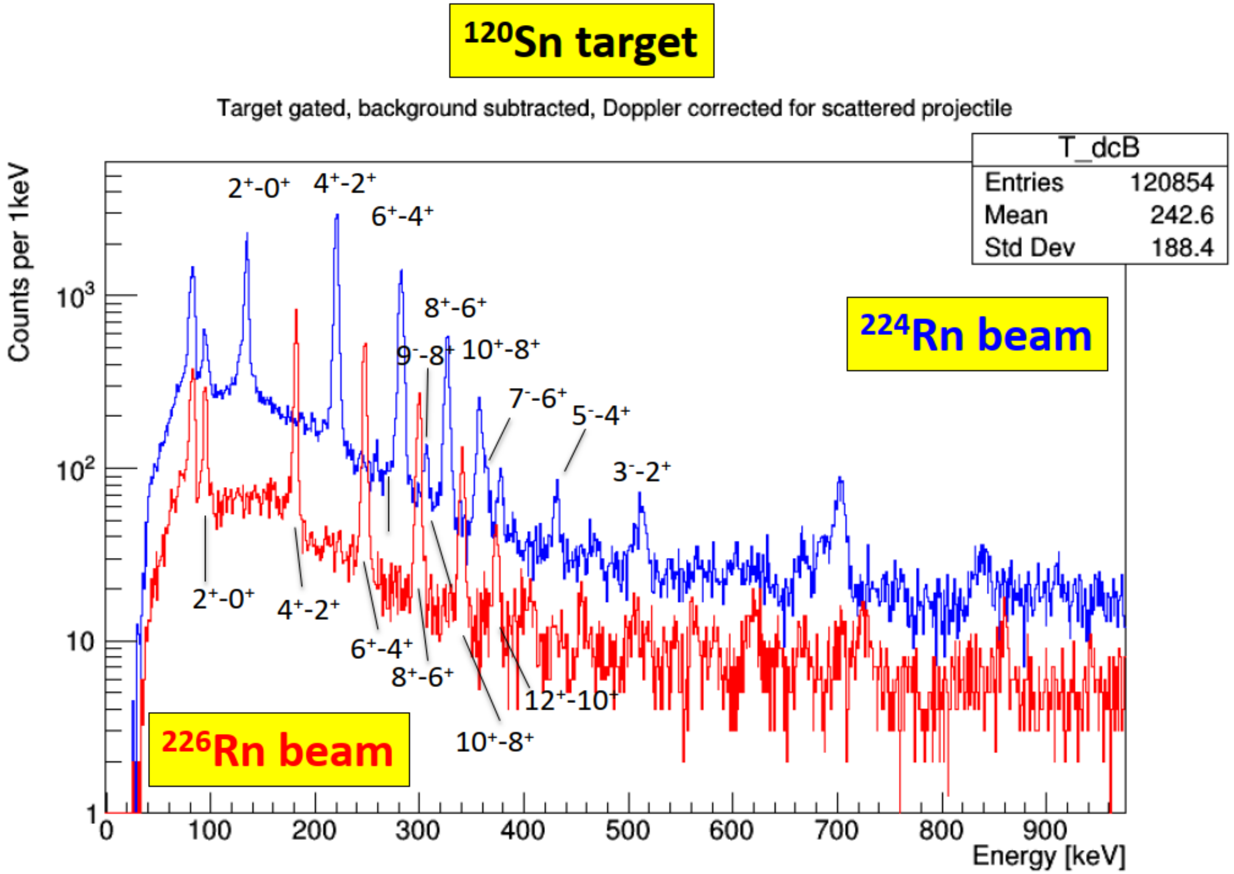






Coulomb excitation of Ra/Rn isotopes: IS552





Heaviest isotopes post-accelerated at ISOLDE (and beyond?) Difficult/busy run with many energy changes and isotopes.

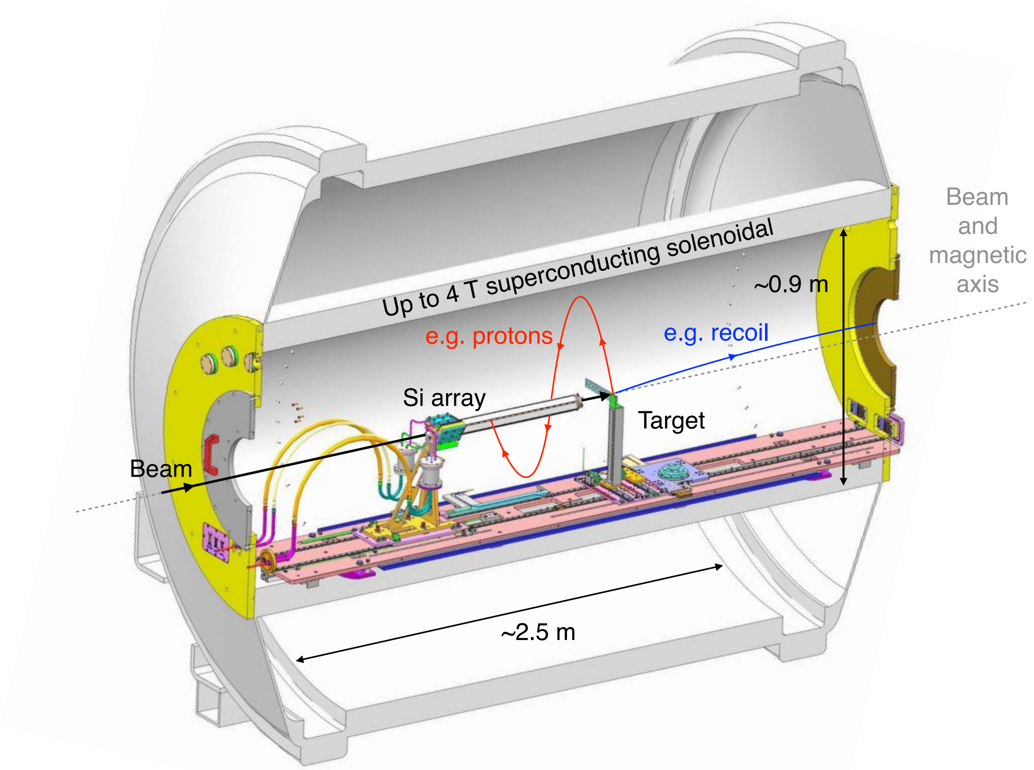
Analysis ongoing (and making impressive progress…)

Warsaw TPC chamber: no spectra to show yet: but mid-run celebratory tirimisu

Preliminary data from ISS

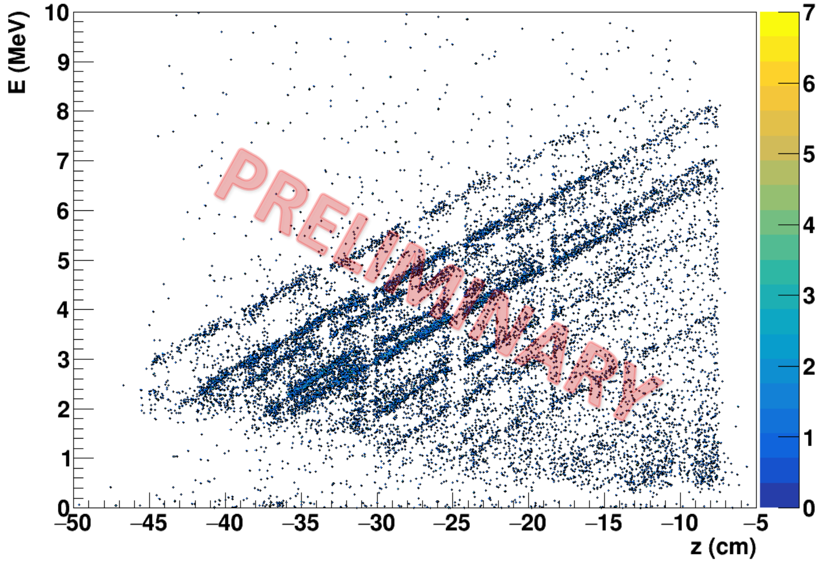
Courtesy Dave Sharp

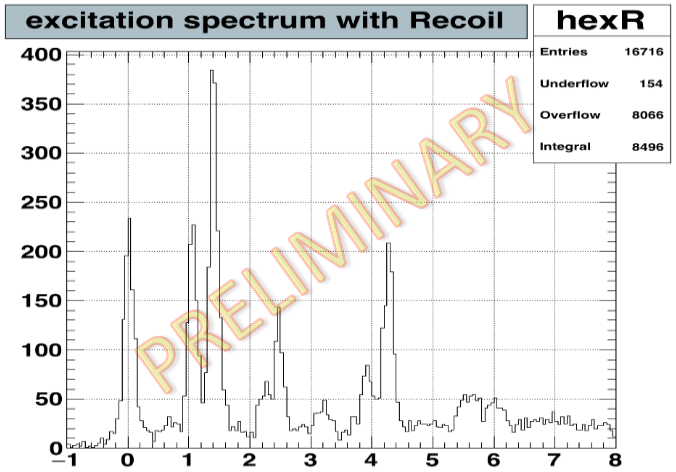
^{28}Mg(d,*p*)^{29}Mg reaction in ISS
with accelerated ^{28}Mg beam at **9.473 MeV/u**
highest HIE-ISOLDE beam energy ever !



Study bound and unbound quantum states in ^{29}Mg **up to 6 MeV**.
Resolution ~**100keV** – able to resolve most states of interest

Recoil proton energy versus position on detector





Exploring terra incognita with ISS (IS631)

A study of the hitherto unknown single-neutron structure of ^{207}Hg was carried out using a ***7.4 MeV/u ^{206}Hg beam*** and the ***ISOLDE Solenoidal Spectrometer*** to momentum analyze the protons following the neutron-adding (*d,p*) reaction

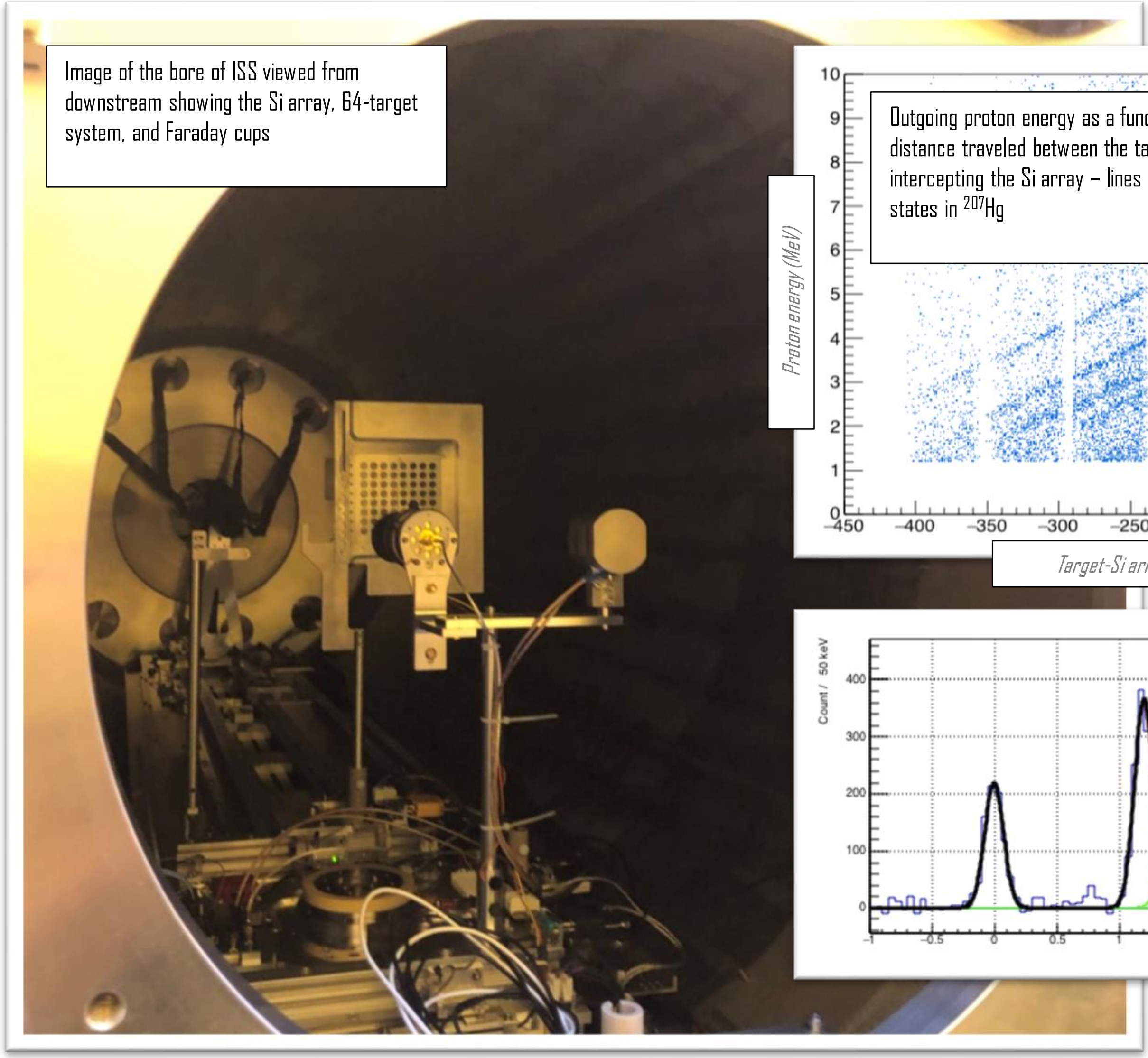
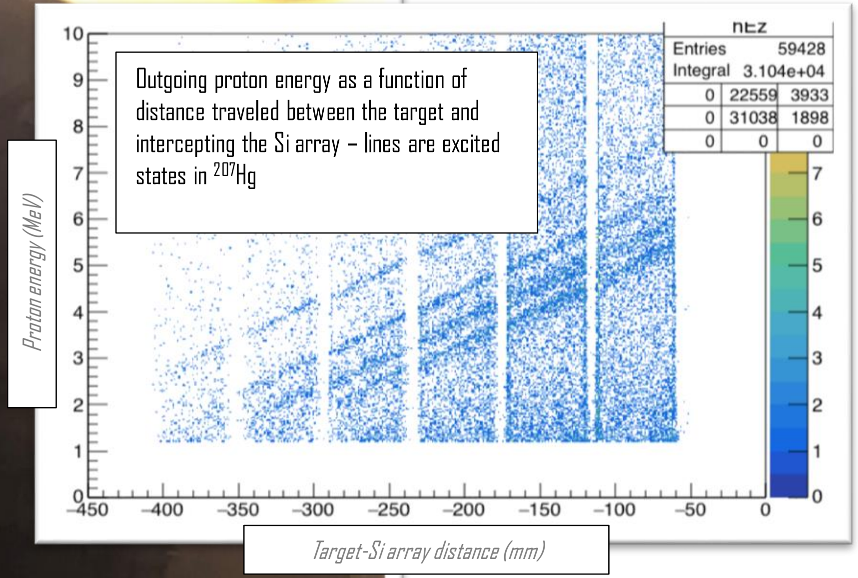
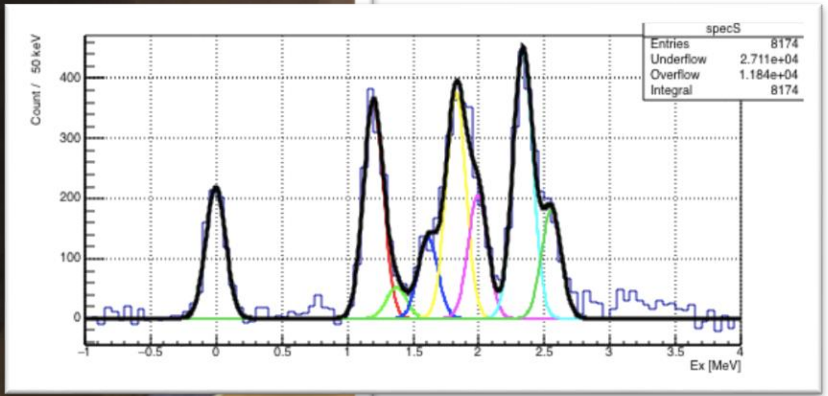


Image of the bore of ISS viewed from downstream showing the Si array, 64-target system, and Faraday cups



Outgoing proton energy as a function of distance traveled between the target and intercepting the Si array – lines are excited states in ^{207}Hg



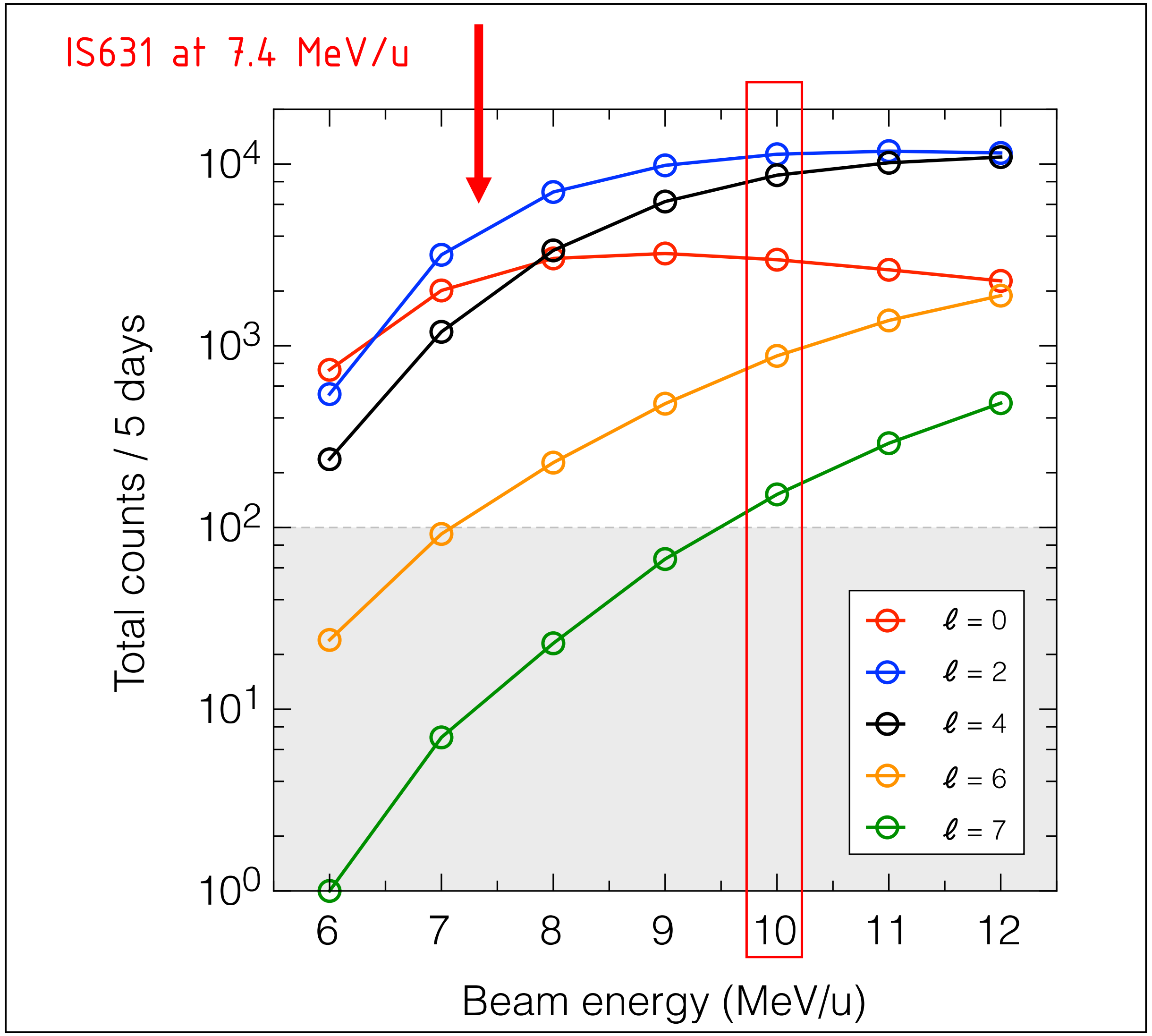
First exploration of single-particle states outside *N* = 126, south of Pb, made possible by ISS.

Experimental info:

- ~***5×10^5 ions per second*** of ^{206}Hg for ~***82 hours***
- Beam ***purity of >98%***
- Measured in singles mode
- Using ***>30*** deuterated polyethylene ***targets*** of thickness around 165 μg/cm^2 (to deal with target degradation)
- ISS set to a B-field of 2.5 T

HIE-ISOLDE beam energy

Importance of 10 MeV/u for exploitation of the direct-reaction studies at HIE-ISOLDE with ISS and Miniball – 10 MeV/u is ideal (for example the ^{28}Mg(d,p) study IS 621), leading to larger (optimal) cross sections and more distinct angular distributions for all reactions and masses, thus maximizing the efficiency of the experimental program



<u>Using the example of IS631</u>

Yields based on a 5-day experiment (typical for many ISOLDE runs)

10 MeV/u would allow the full complement of single-particle states to be probed in heavy nuclei, for which ISOLDE excels.

At a reduced beam energy, the higher *j* single-particle states (populated more weakly) are out of reach, but present at 10 MeV/u

Some observations through the year

8B and 96Kr. Not realized
SOLDE runs.

Operat … Their
unders

Machine … s (wells in
bunching … quently broken.

Stabili … ears ago not
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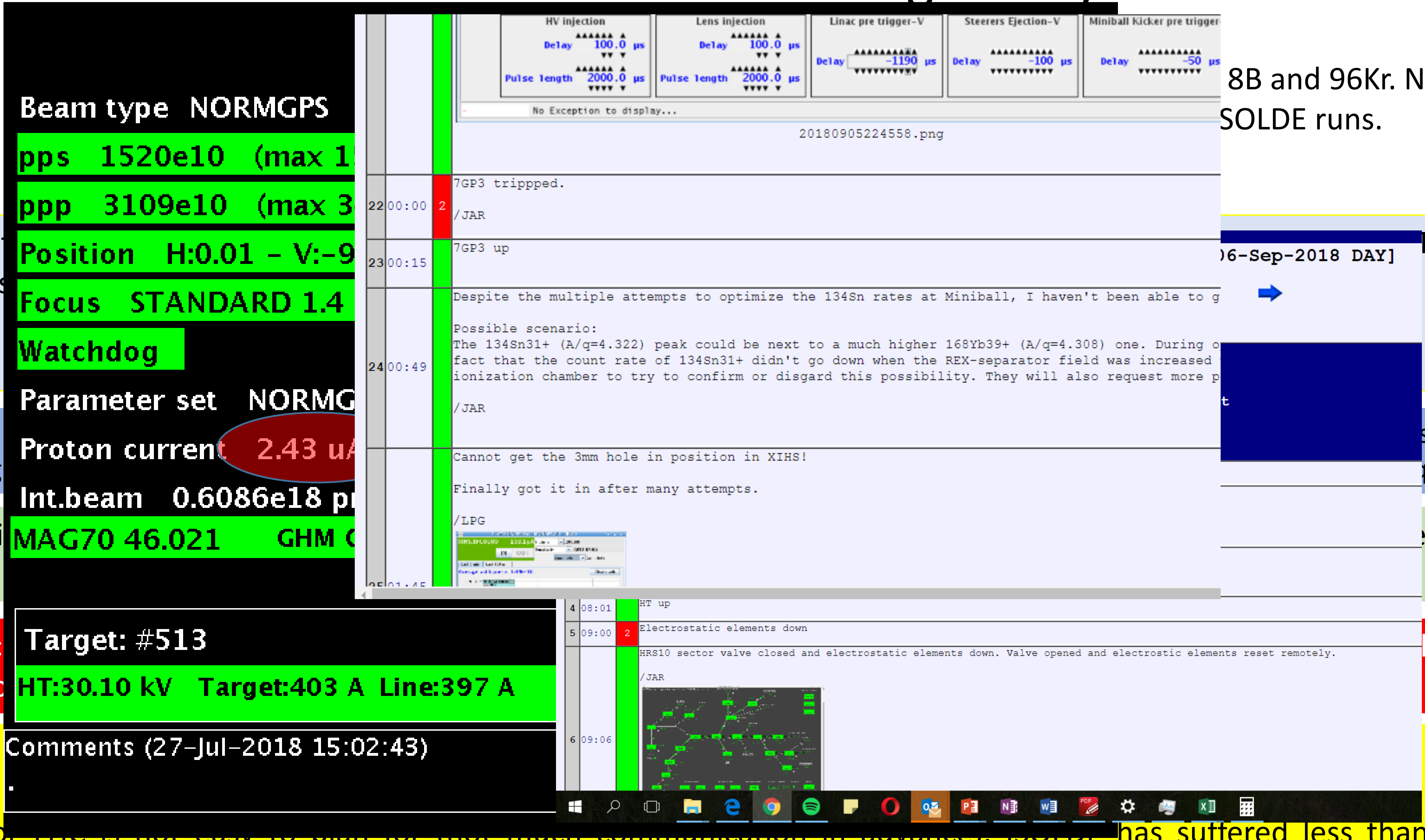
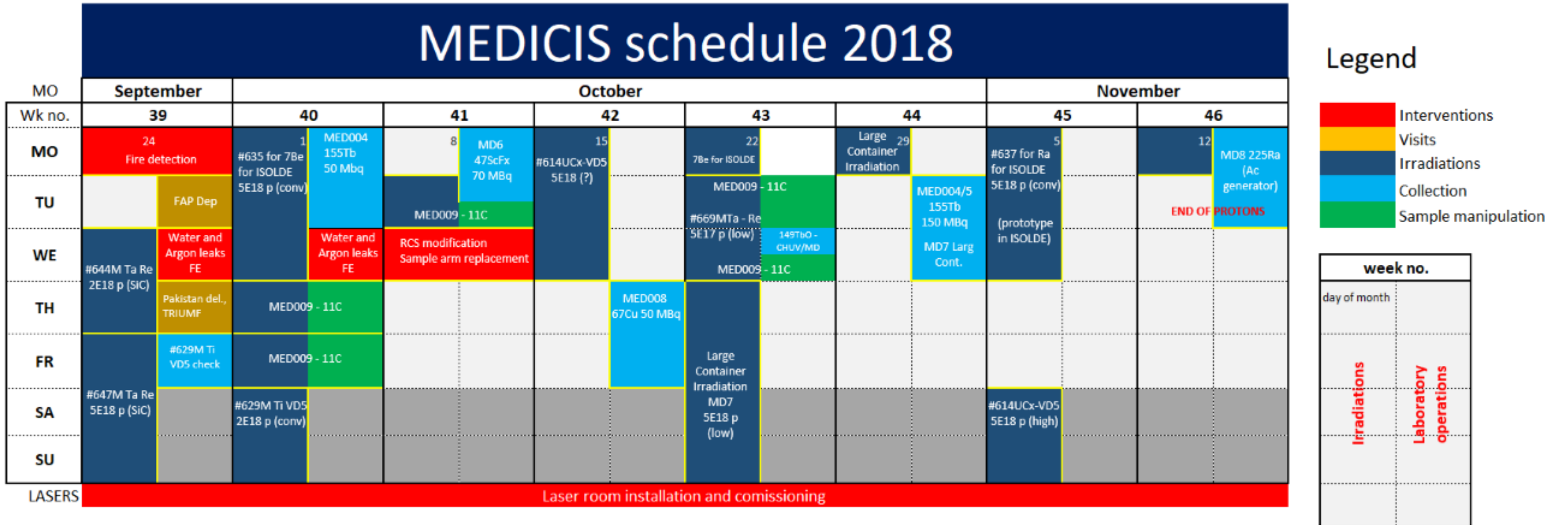


MD fo … has suffered less than fixed target
programmes downstream. Many thanks to the booster for adapting and maintaining our needs.

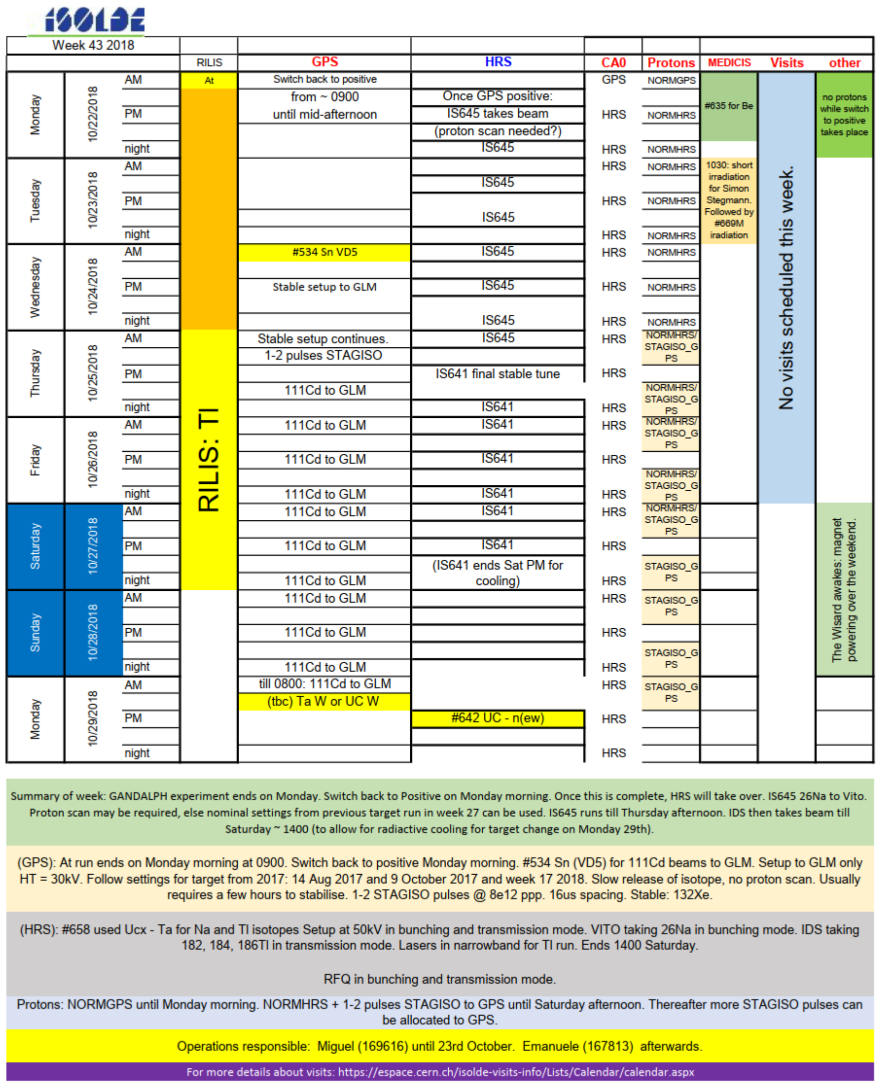
Interaction with MEDICIS



Interaction with MEDICIS has been mostly constructive; still learning. Close interaction with Joao Pedro Ramos (MEDICIS run coordinator). Can be mutually beneficial: irradiation for winter physics. If protons could be maintained during target movement could be essentially transparent to ISOLDE. Improvements to the montrac security chain for target changes would also help. But physics programme has not been hit hard by MEDICIS.

Possibility of collecting non-medical isotopes: would have greatly helped for 53Mn

NOTE: MEDICIS has not yet really been running in "MEDICIS mode"….direct irradiation through targets until the wider units for MEDICIS become available



Researchers night 2018: official opening of the esplanade.

ISOLDE participation highly regarded. Perhaps new ideas next year…

12 LE PAYS GESSIEN Jeudi 4 octobre 2018 — Pays de Gex

Interminable queue pour rentrer dans la sphère…

Nuit des chercheurs : la rançon du succès

Vendredi 28 Septembre de 17 h à 23 h, le CERN ouvrait ses portes et proposait des animations exceptionnelles.

SAINT-GENIS-POUILLY

Scientifiques en herbe, passionnés et novices de tout âge se sont retrouvés pour la Nuit des Chercheurs, un événement gratuit et ludique. Le plus grand laboratoire de physique des particules du monde accueille le grand public en septembre depuis 9 ans déjà.

On pouvait fabriquer son propre détecteur de particules et programmer des robots. Le Synchrocyclotron (SC) se visitait, (premier accélérateur de particules du CERN), des casques de réalité virtuelle emmenaient le public au cœur du détecteur CMS et du Centre de Calcul. Et surtout, c'était la soirée pour rencontrer les chercheurs du CERN, qui présentaient leurs expériences à travers des démonstrations interactives ! Le hic, (pas le boson), c'est que près de 5000 personnes se sont amassées autour de ces animations prévues pour 3 fois moins de monde (la fréquentation de l'année dernière). La question de l'origine de l'univers et de ses premiers instants semble intéresser tout le monde.

JÉRÔME LEGAY

Des documentaires, des animations, des ateliers et des expositions nocturnes.

Tout était bondé, les particules n'étaient pas seules en collision.

Anna de Manincor la réalisatrice d'un long métrage sur le CERN.

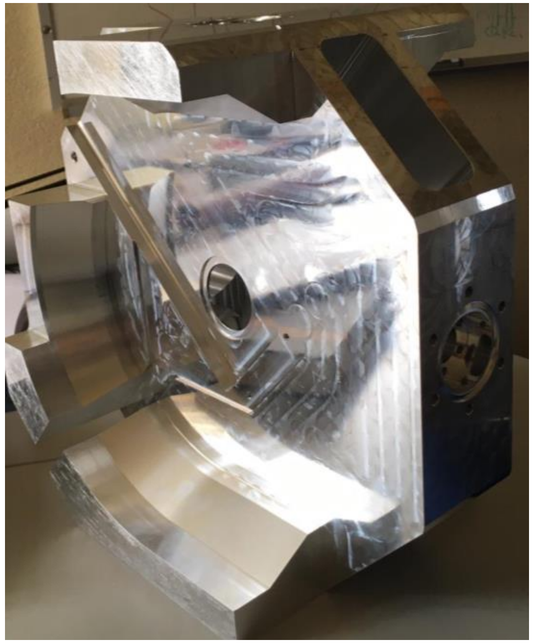
Une myriade d'animations étaient proposées.

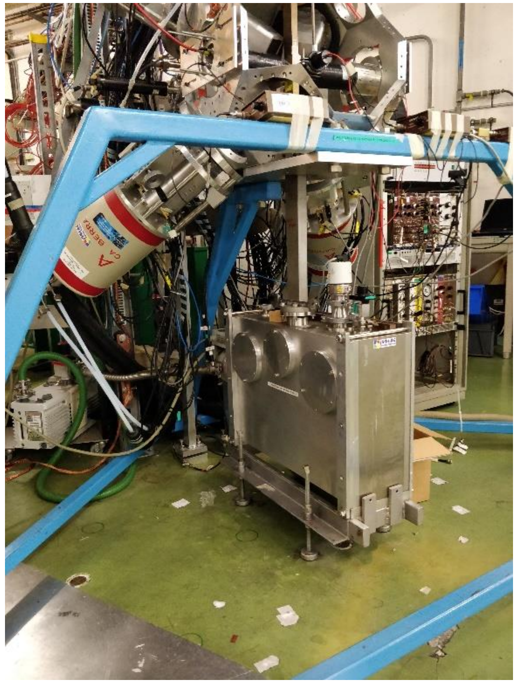
EP technicians

Antonio Goncalves and Francois Garnier: supported by the collaboration.

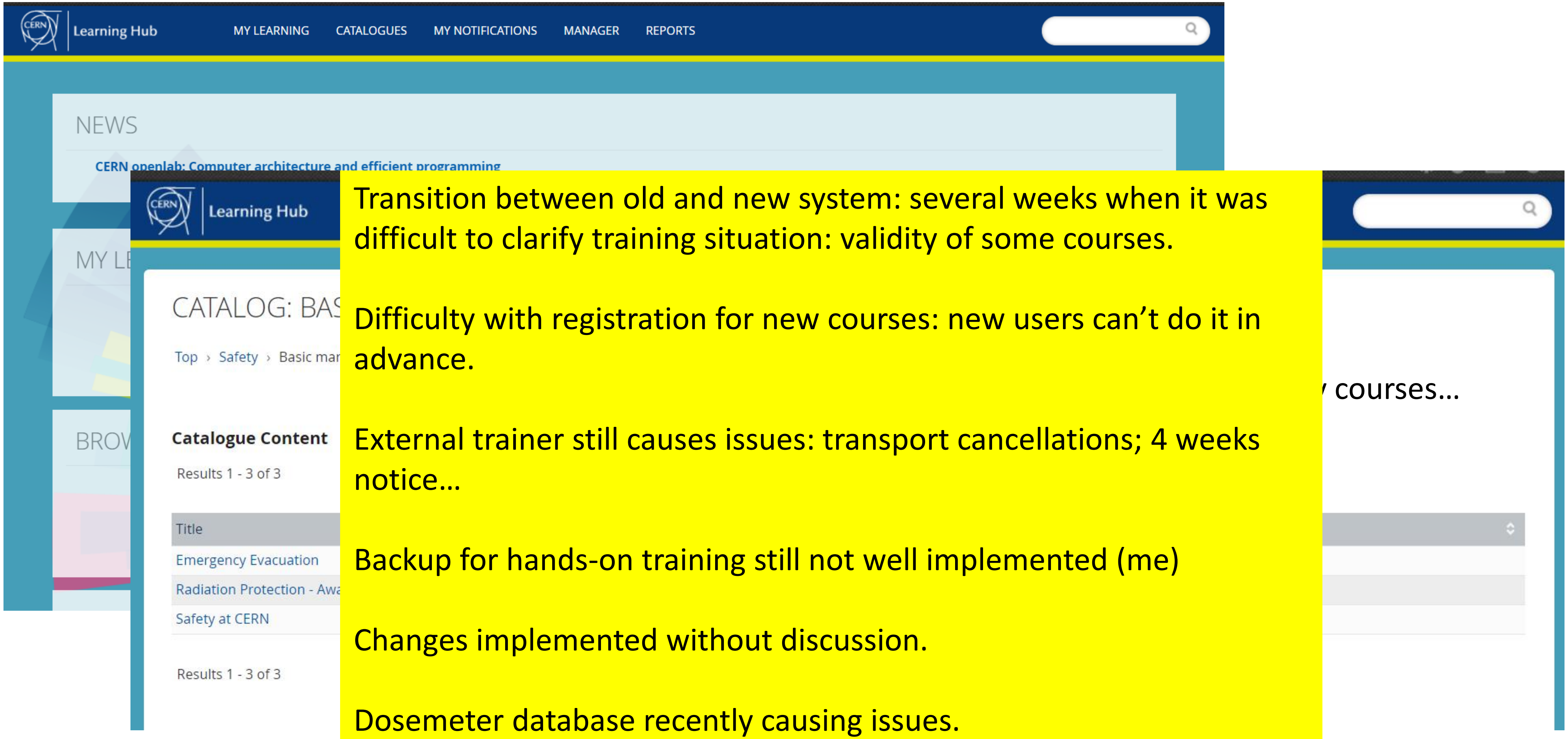
Available for jobs for users to assist experiment: especially mechanical work.

Work carried out for MIRACLS, IDS, HIE-ISOLDE, VITO, biophysics and others.





Initial feedback from new learning “hub” (safety training for most users)



Transition between old and new system: several weeks when it was difficult to clarify training situation: validity of some courses.

Difficulty with registration for new courses: new users can’t do it in advance.

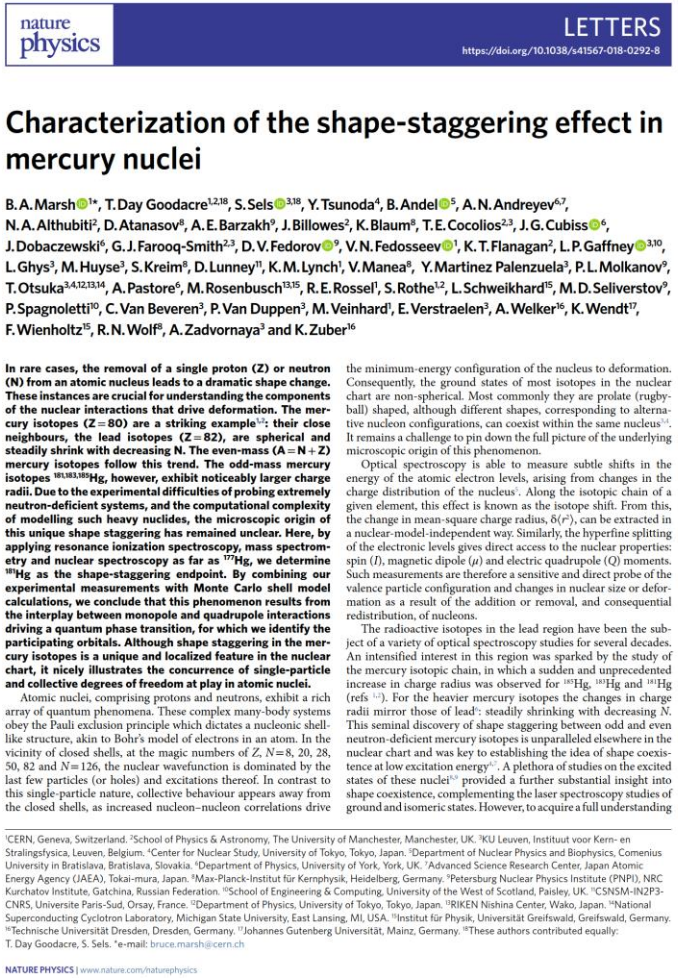
External trainer still causes issues: transport cancellations; 4 weeks notice…

Backup for hands-on training still not well implemented (me)

Changes implemented without discussion.

Dosemeter database recently causing issues.

Publications



CERN willing to support certain publications for open access which feature CERN author.

For ENSAR2 open access for all publications. Can be a repository e.g. ARXIV.

CERN EP creating a designated area for ISOLDE pre-prints which can be used for future publications. (but not retrospectively).