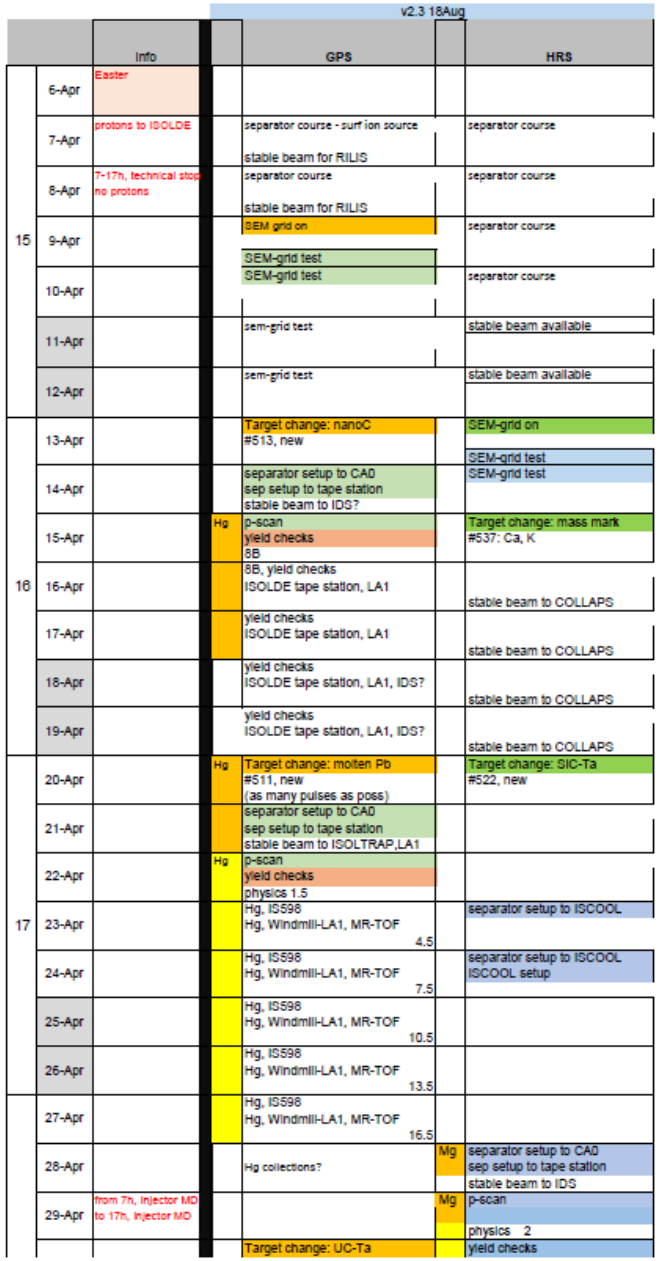
Physics coordinator report

Karl Johnston



v2.3 18Aug

		Info	GPS		HRS
15	6-Apr	Easter			
	7-Apr	protons to ISOLDE	separator course - surf ion source stable beam for RILIS		separator course
	8-Apr	7-17h, technical stop no protons	separator course stable beam for RILIS		separator course
	9-Apr		SEM grid on		separator course
	10-Apr		SEM-grid test SEM-grid test		separator course
	11-Apr		sem-grid test		stable beam available
	12-Apr		sem-grid test		stable beam available
16	13-Apr		Target change: nanoC #513, new		SEM-grid on SEM-grid test
	14-Apr		separator setup to CA0 sep setup to tape station stable beam to IDS?		SEM-grid test
	15-Apr		Hg p-scan yield checks 8B		Target change: mass mark #537: Ca, K
	16-Apr		8B, yield checks ISOLDE tape station, LA1		stable beam to COLLAPS
	17-Apr		yield checks ISOLDE tape station, LA1		stable beam to COLLAPS
	18-Apr		yield checks ISOLDE tape station, LA1, IDS?		stable beam to COLLAPS
	19-Apr		yield checks ISOLDE tape station, LA1, IDS?		stable beam to COLLAPS
17	20-Apr		Hg Target change: molten Pb #511, new (as many pulses as poss)		Target change: SIC-Ta #522, new
	21-Apr		separator setup to CA0 sep setup to tape station stable beam to ISOLTRAP,LA1		
	22-Apr		Hg p-scan yield checks physics 1.5		
	23-Apr		Hg, IS598 Hg, Windmill-LA1, MR-TOF 4.5		separator setup to ISCOOL
	24-Apr		Hg, IS598 Hg, Windmill-LA1, MR-TOF 7.5		separator setup to ISCOOL ISCOOL setup
	25-Apr		Hg, IS598 Hg, Windmill-LA1, MR-TOF 10.5		
	26-Apr		Hg, IS598 Hg, Windmill-LA1, MR-TOF 13.5		
	27-Apr		Hg, IS598 Hg, Windmill-LA1, MR-TOF 16.5		
	28-Apr		Hg collections?	Mg	separator setup to CA0 sep setup to tape station stable beam to IDS
	29-Apr	from 7h, Injector MD to 17h, Injector MD		Mg	p-scan physics 2
			Target change: UC-Ta		yield checks

2015

- Protons to ISOLDE since 9 April
- Physics started April 15
- Low energy until October when HIE-ISOLDE started. Running period of 30 weeks.
- Since 22nd October, in special “HIE-ISOLDE mode
- 471 Low Energy shifts requested
- 373 scheduled; 265 delivered ~70%

Delivered	2015	2014	2012	2011
Protons	9.4e19	5.5e19	11.5e19	8.05e19
Shifts for IS exp	263	208.5	416	313.5
Shifts for LOIs	4	6.5	15.5	16
REX shifts (IS +LOI)	Special	-	221.5	190.5
Average IS shifts/day	1.4	1.55	1.61	1.55

Overview of planned experiments (HIE ISOLDE apart)

- In-source laser spectroscopy on Hg and Au (RILIS + WINDMILL + ISOLTRAP)
- : Po, 34Mg, Cu for ISOLTRAP

- IDS: decay of 20Mg
- Cd, K , Mg for IDS
- 68Mn to IDS

- SSP/biophyics/:
  - Mn and In for EC/Mossbauer
  - Cd, Ag & Hg for PAC
  - Rare earths for SSP

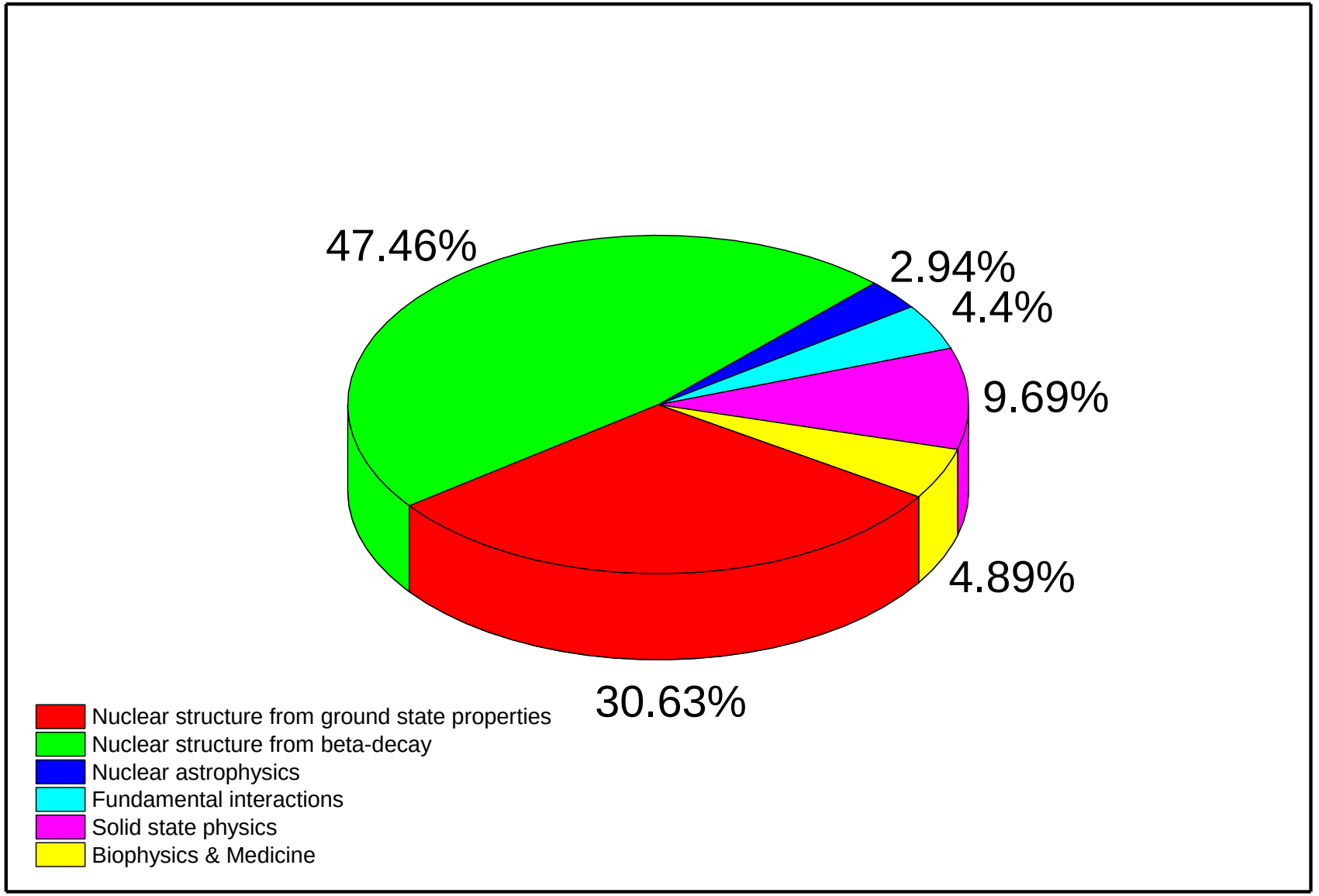
- CRIS: Ga, Fr, Cu

COLLAPS

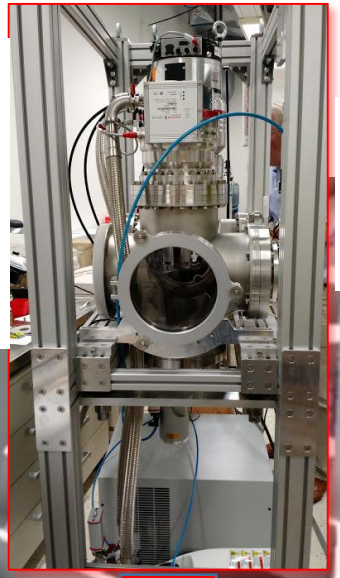
- N-rich Mn and 53-54Ca to COLLAPS

- Tb isotopes for medicine
- LA1: decay of 10C
- LA1: 11Be βp emission
- Negative At ions

Beam time pie from 2015



Installation of 35 degree deflector and re-commissioning of ASPIC. Then start of 55 degree defelctor for beta-NMR line (2nd half of year).

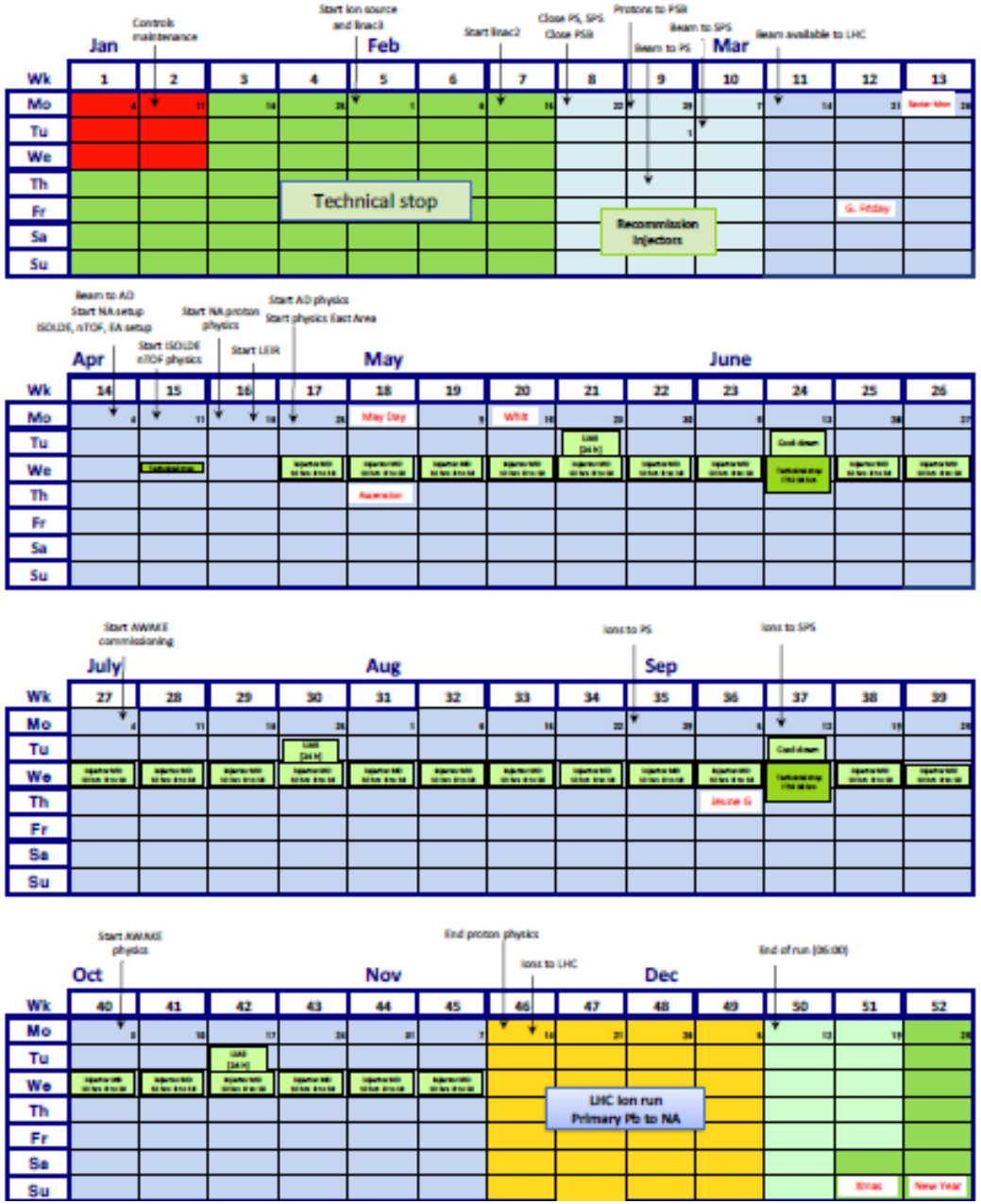


New collection chamber

ISOLTRAP: Ion phase imaging. First test for Cd beams?

CRIS : will ask for removal of LCO…June ISCC. Would allow for tests of anti-collinear spectroscopy

Schedule for 2016



Based on the length of the YETS 2015-16 & EYETS 16-17 [ATS-PM-MS-0001]:

- Beam to LHC: March 14th.
- Physics at Isolde & nTOF: April 11th.
- p-physics at North Area: April 18th. (Awake October 3rd)
- East Area & AD physics: April 25th.
- Proton -> Pb November 14th.
- End of run December 12th.

INTC physics: 31 weeks. (~1.8x10^{19} pot for nTOF)
NA FT physics: 30 weeks (p) + 4 weeks (Pb)
AD & EA: 29 weeks.

Weekly MDs, 3 Technical stops, UA9 runs indicative (tbd by SPSC). SPS scrubbing likely needed, but no dedicated scrubbing run.

Outline of ISOLDE Schedule

	April					May				June			
Wk	14	15	16	17	18	19	20	21	22	23	24	25	26
Mo	28	4	11	18	25	2	9	16	23	30	6	13	20
Tu		Proton set up to ISOLDE			Low energy running period								
We													
Th													
Fr													
Sa						Commissioning of CM1 and CM2							
Su													

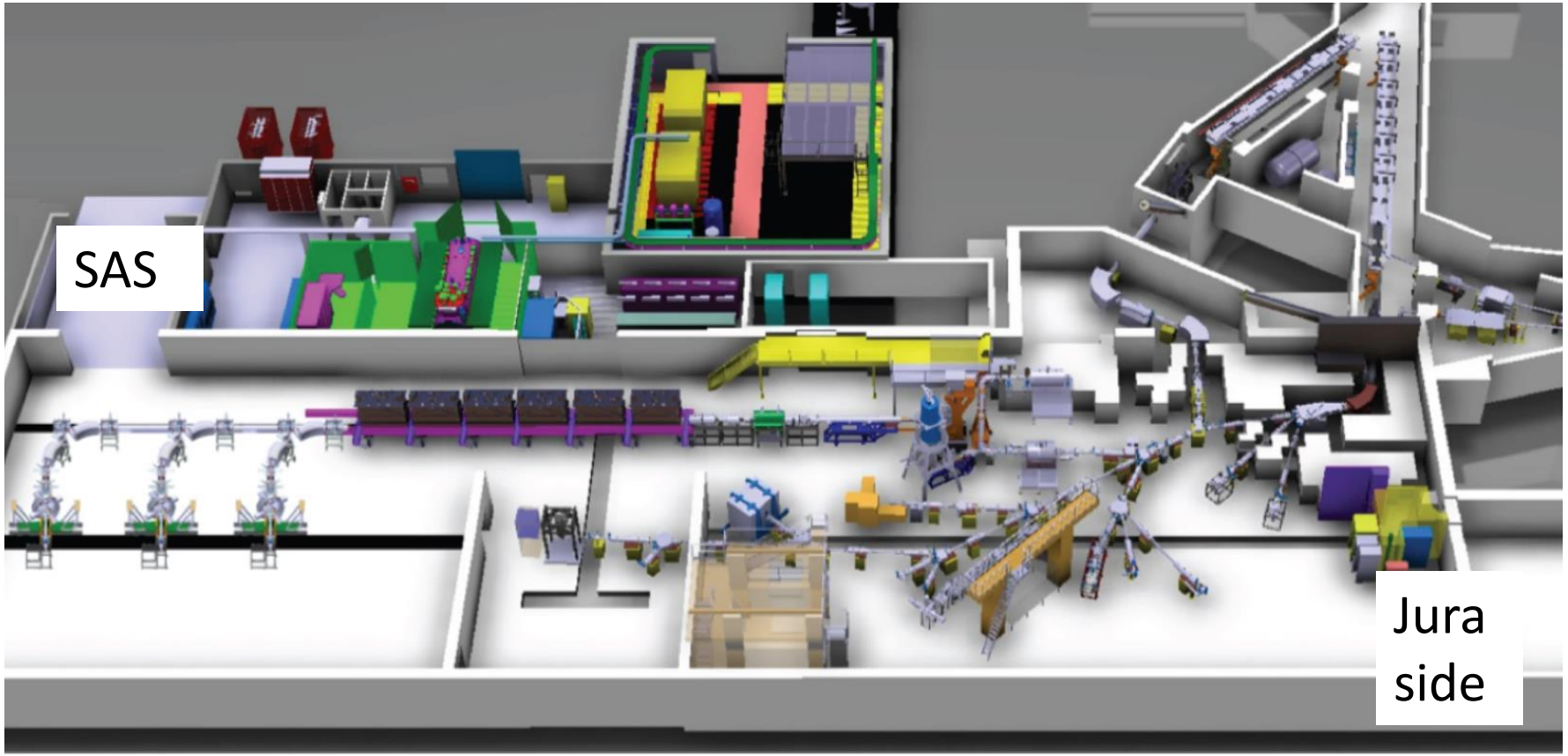
	July					August				September			
Wk	27	28	29	30	31	32	33	34	35	36	37	38	39
Mo	27	4	11	18	25	1	8	15	22	29	5	12	19
Tu													
We										HIE ISOLDE running period			
Th													
Fr													
Sa	Commissioning of CM1 and CM2												
Su													

	October					November				December			
Wk	40	41	42	43	44	45	46	47	48	49	50	51	52
Mo	26	3	10	17	24	31	7	14	21	28	5	12	19
Tu													
We													
Th													
Fr													
Sa													
Su													

- 20 weeks for dedicated LE physics, including negative ion run (~ 3 weeks in total)
- 12 weeks for HIE ISOLDE
- LE beam requests are out and due by end of week 5.
- Initial idea of demands and resources by end of next week.
- HIE beam requests end of next week.
- Setting up time will eat into this…RFQ/HIE ISOLDE etc

Access to ISOLDE

- ISOWORK has been suppressed. Now only **ISOHALL**.
- Access to HIE-ISOLDE recommended for only local physicists when moving equipment or dewars etc
- Access for users is still at the Jura side.
  - **Tourniquet at 508 controls access to the hall in addition to access door in Building 508. Both operated via dosemeter.**
  -



Safety and courses

- For all setups: fixed and travelling: safety clearance required before RUNNING
  - Travelling setups – template will be send some weeks before running, small safety visits/checks once setting up started
  - Contact your local contacts in case of questions

- Courses in 2016 for all: (as for 2015)
  - Online: general and ISOLDE RP, electrical awareness
  - 2-h ISOLDE RP (for everybody, not only new users and new dosimeter requests)
  - 1.5-h ISOLDE electrical safety.
  - Hands-on courses take place on Tuesday afternoons. May have more in the year if necessary e.g. during HIE-ISOLDE period.
  - Some training under review. Need for refreshing courses etc (probably going to be electronic for the first renewal at least).
  - **Courses need to be validated in EDH**
- Ongoing discussion: Need for safety helmets and shoes? Adopt better practice for controlling on leaving the hall…


Must
stay
closed!

Building 508

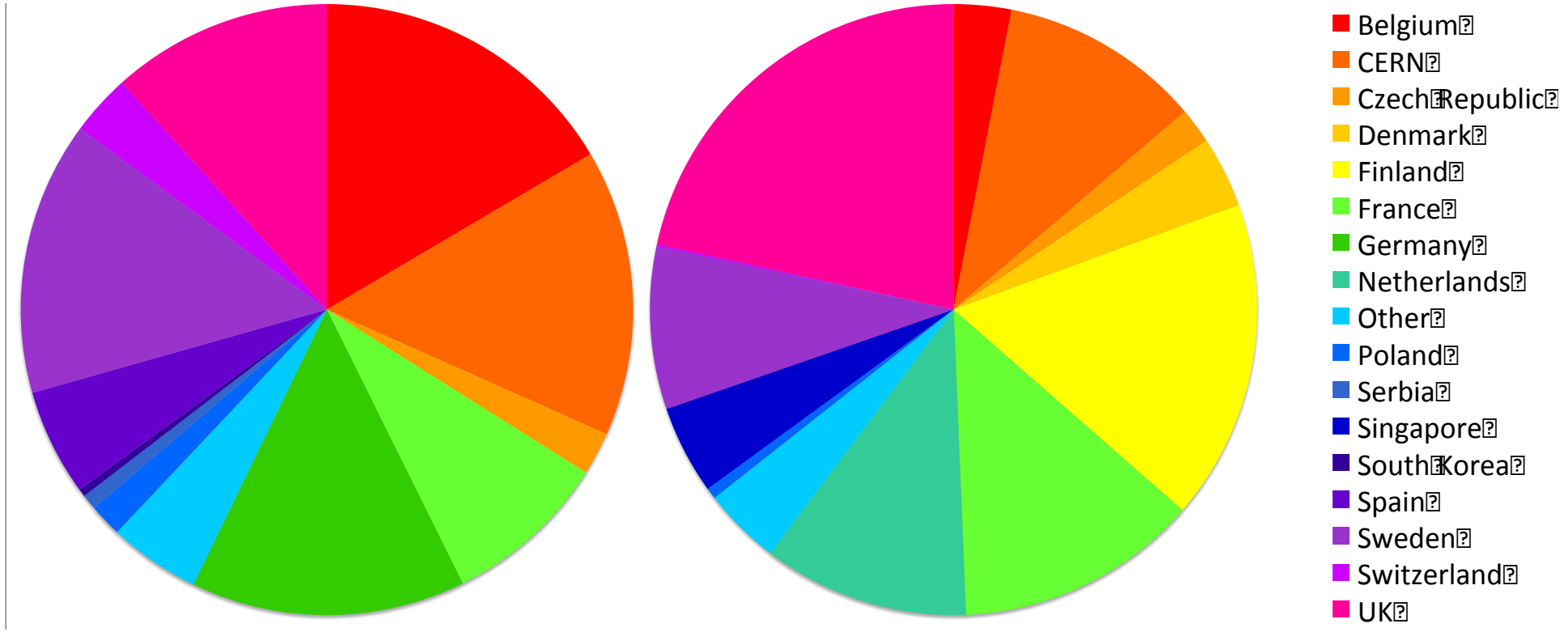
- Rack for p-request, beamgates and access in place.
- Access keys modules will be installed in it this week
- p-request and beamgates hardware is being prepared.
- Ethernet re-connection of PCs is ongoing.

ISOLDE Visitors room

Visits to ISOLDE

- RP watching even more closely
- ISOLDE as Controlled RP area:
- Only professional visits allowed
  - Our suggestion – university students, uni and school teachers, VIPs
- Non-professional visits access on case-by-case basis
  - High-school students above 16y
  - Private-public visits: friends, family
- No visits during the opening of beamlines or making high-intensity collections
- All visits
  - announced to myself, Richard, or Kara
  - Included in weekly schedule
  - discussed and approved or not in Tuesday Isolde technical meeting
  - Dedicated calendar available https://espace.cern.ch/isolde-visits-info/_layouts/15/start.aspx#/Lists/Calendar/calendar.aspx
- RP make a survey prior to **each** visit.
- Wear helmets and closed shoes.

ISOLDE Visits: Nationality of visitor



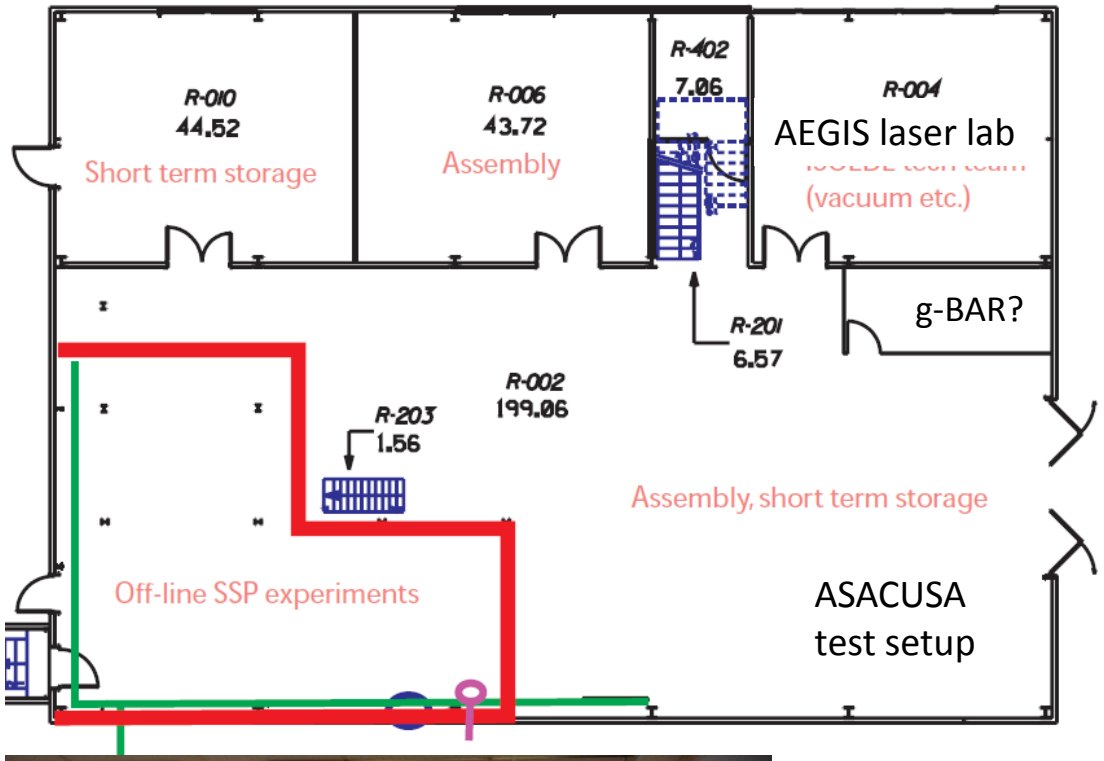
2014
Total visitors: 745

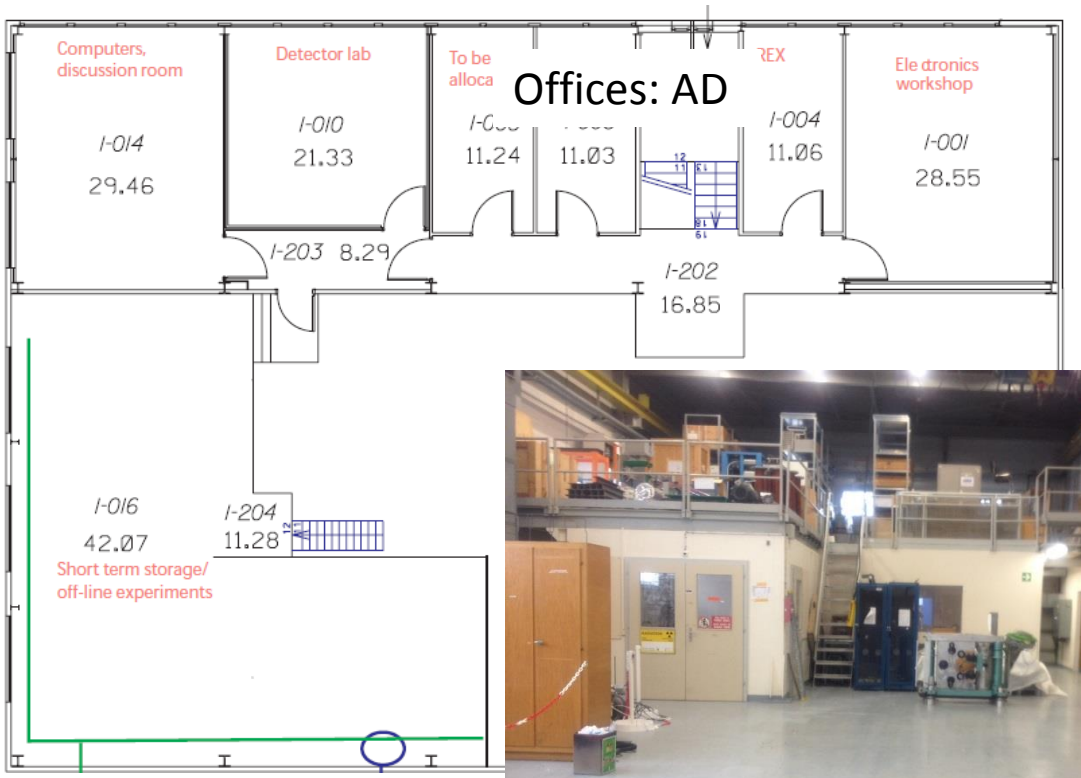
2015
Total visitors: 857

Building 508: Kitchen

Almost there….needs final plumbing

Tooling area available for users: requires clearance





Offices: AD

Building 275

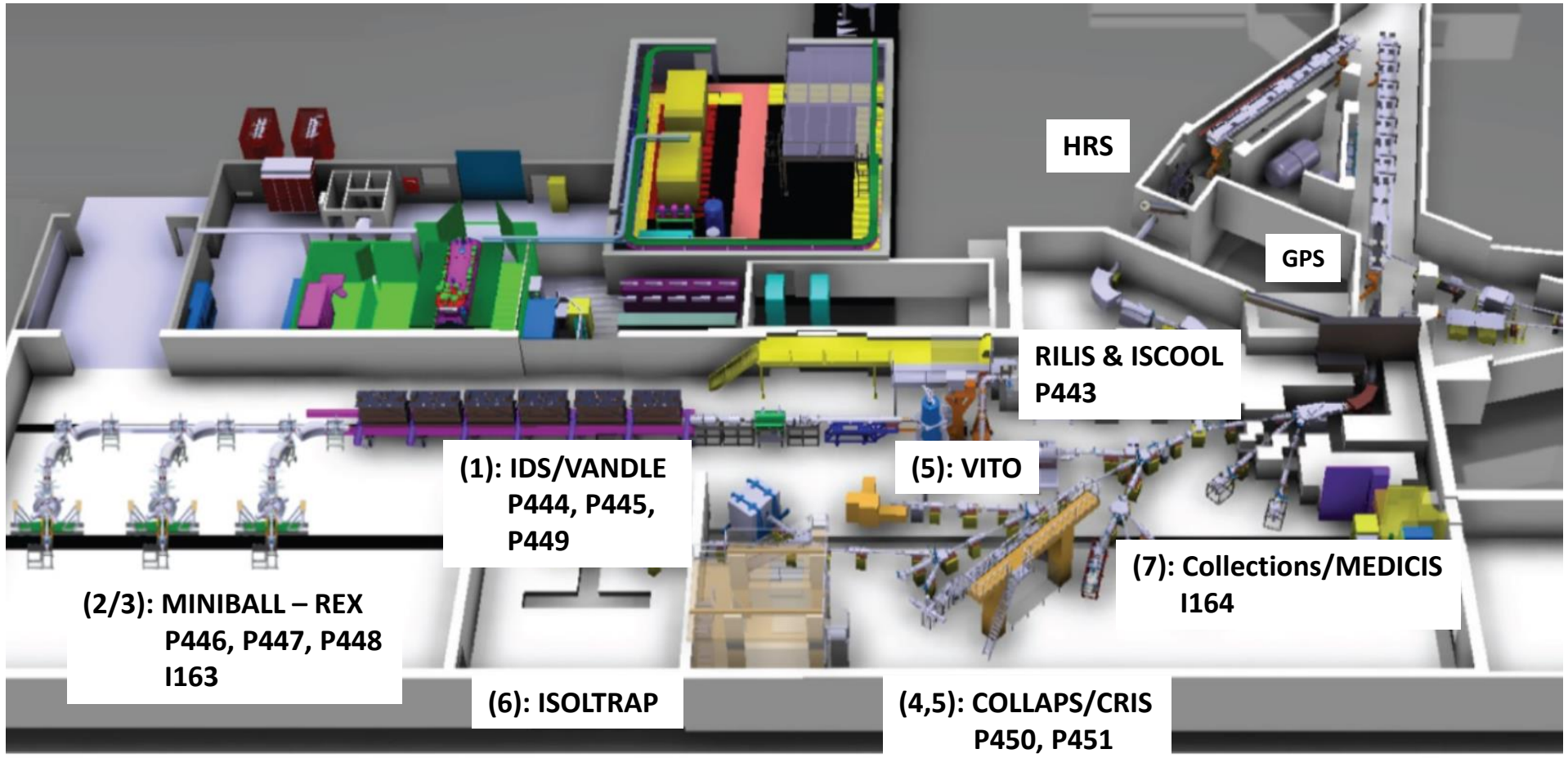
Offline lab almost ready (floor needs to be re-done).
De-classification is underway.
Requests for use are ready to be accepted.
Currently ISOLTRAP and beta-NMR will use some space and time.

Finding space for testing HELIOS…

Magnet is now ready to be shipped

ISOLDE new proposals from 51st INTC

(1) Decay spectroscopy
(2) Coulomb excitation
(3) Transfer reactions
(4) Laser spectroscopy
(5) Beta-NMR
(6) Penning traps
(7) Applications:
- Solid state
- Life Sciences

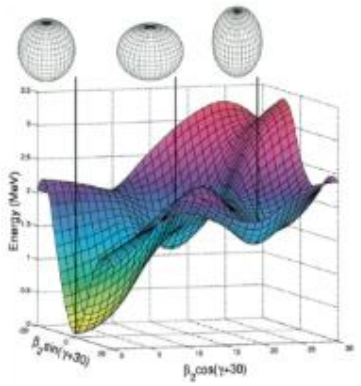


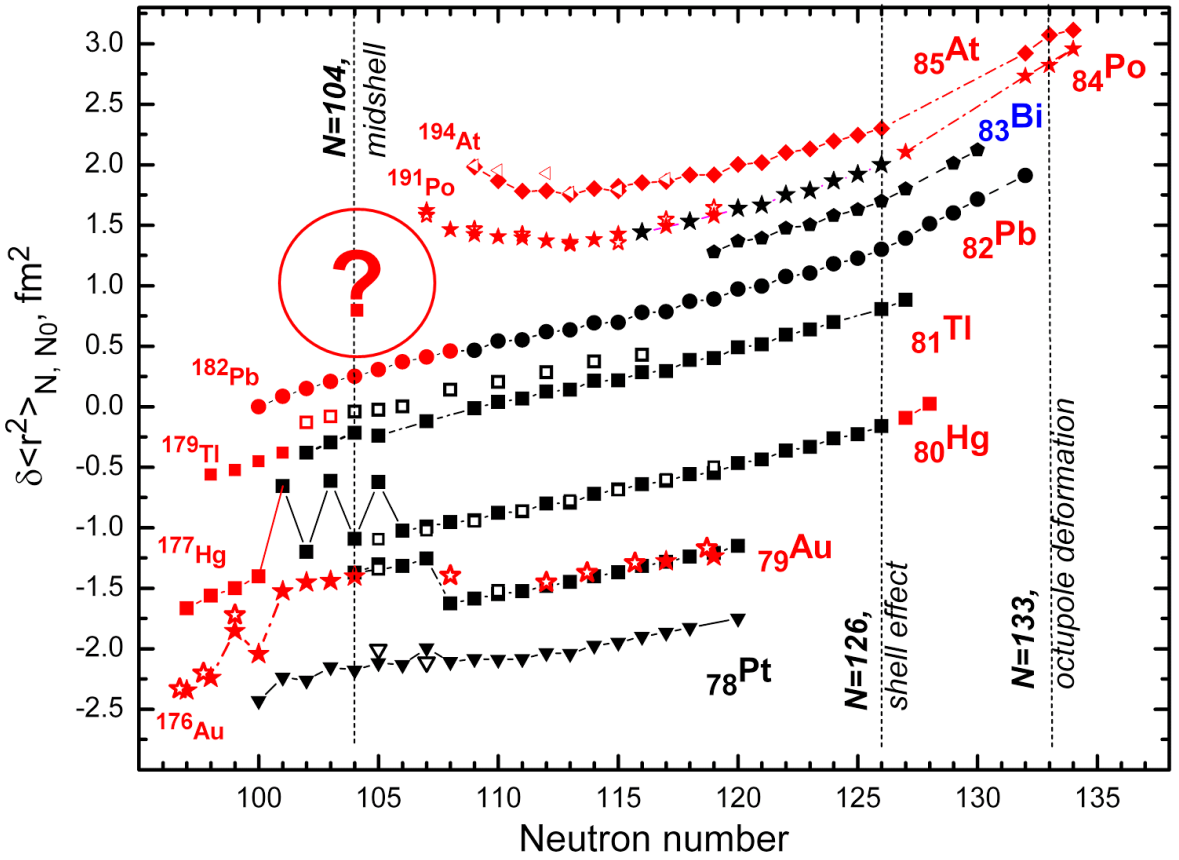
P-443: Nuclear structure

Shape-coexistence and shape-evolution studies for Bi isotopes by insource laser spectroscopy and beta-delayed fission in ^{188}Bi

RILIS

^{186}Pb





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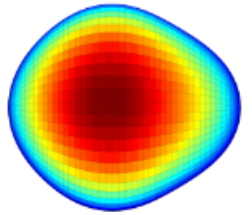


IS608

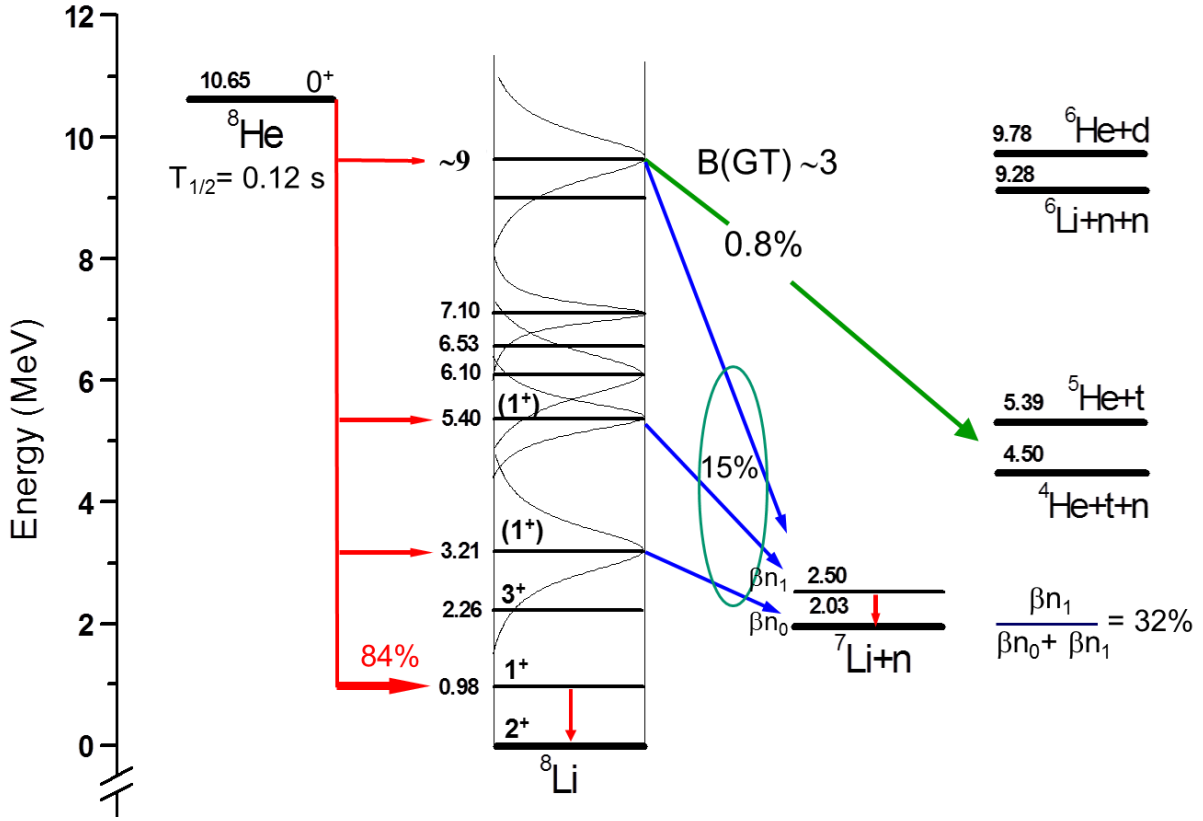
INTC-P-443: 29 shifts recommended for approval by the RB

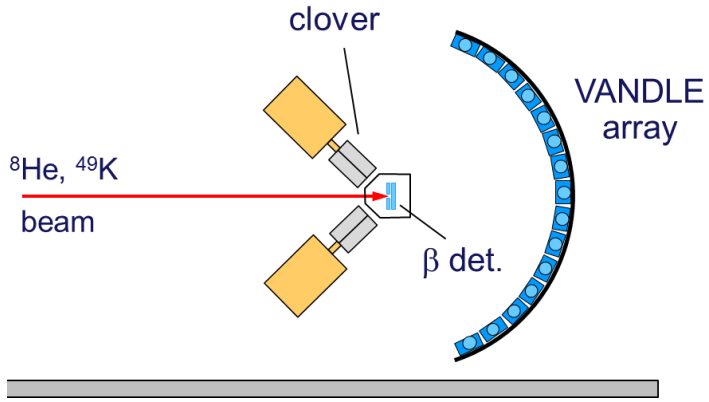
P-444: Decay spectroscopy

Study of beta-delayed neutron decay of ^{8}He

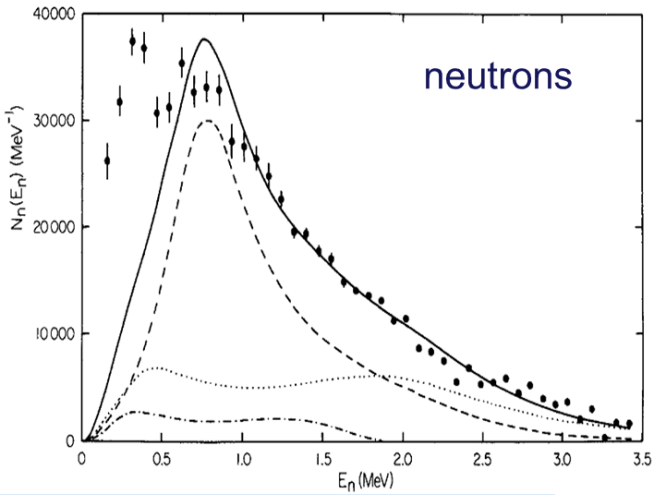
VANDLE/IDS

Decay scheme of ^{8}He





T. Bjornstad at al., Nucl. Phys. A366(1981)461



IS609

INTC-P-444: 7 shifts recommended for approval by the RB

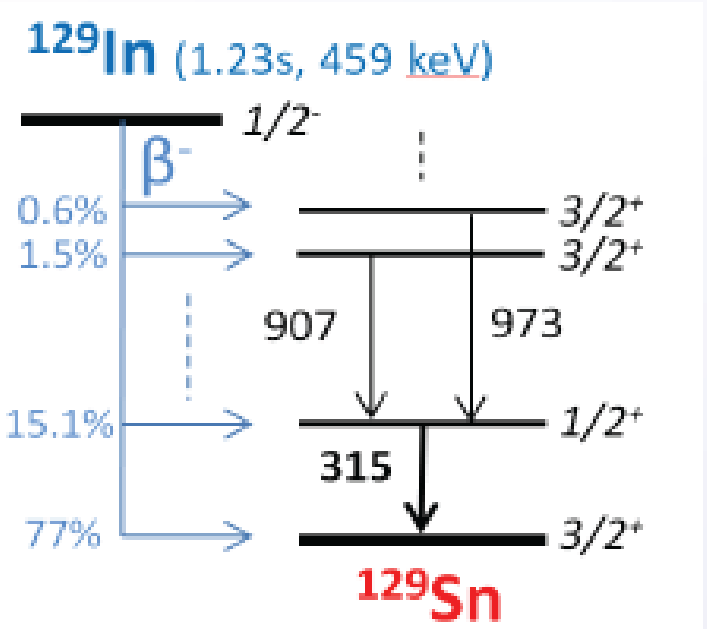
P-449: Decay spectroscopy

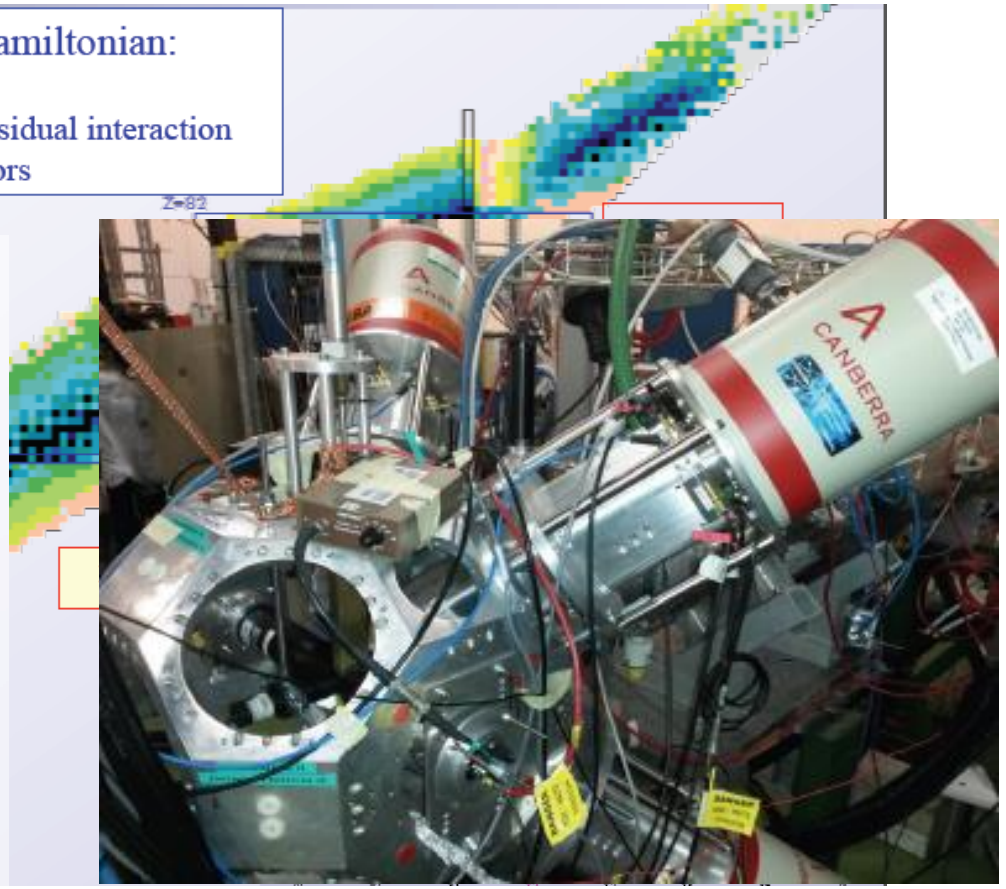
Gamma and fast-timing spectroscopy of the doubly magic ^{132}Sn and its 1- and 2n particle/hole neighbours

IDS

Test the shell-model effective Hamiltonian:

- single particle energies
- 2-body matrix elements of the residual interaction
- effective electromagnetic operators





IS610

INTC-P-449: 17 shifts recommended for approval by the RB

Summary of INTC in November

INTC-P-443: 29 out of 29 shifts recommended
INTC-P-444: 7 out of 7 shifts recommended
INTC-P-445: 0 out of 21 shifts recommended
INTC-P-446: 0 out of 30 shifts recommended
INTC-P-447: 0 out of 21 shifts recommended
INTC-P-448: 3 out of 21 shifts recommended
INTC-P-449: 17 out of 27 shifts recommended
INTC-I-164: support recommended
I-163 P-450, P-451 postponed

In total 56 out of 156 recommended.

INTC February 2016

- 19 proposals/LOIS/ADD
- 16 for ISOLDE
- Open session tomorrow from 1000 – 1800
- Mostly low energy
- Total requested shifts: 305

~ 1377 shifts on the books
~ 829 HIE/REX
~ 547 Low energy

Beam requests will allow to collect publications for the library.
Technical aspects could be improved for preparing proposals.