



The ALTO facility at IPN



ALTO a hybrid facility

stable
beams

ligne 320
BACCHUS
spectrometer

SPLIT POLE

ORGAM phase2

Radioactive
beams

ISOL

Beta-decay,
laser spectroscopy...

Tape system; close geometry

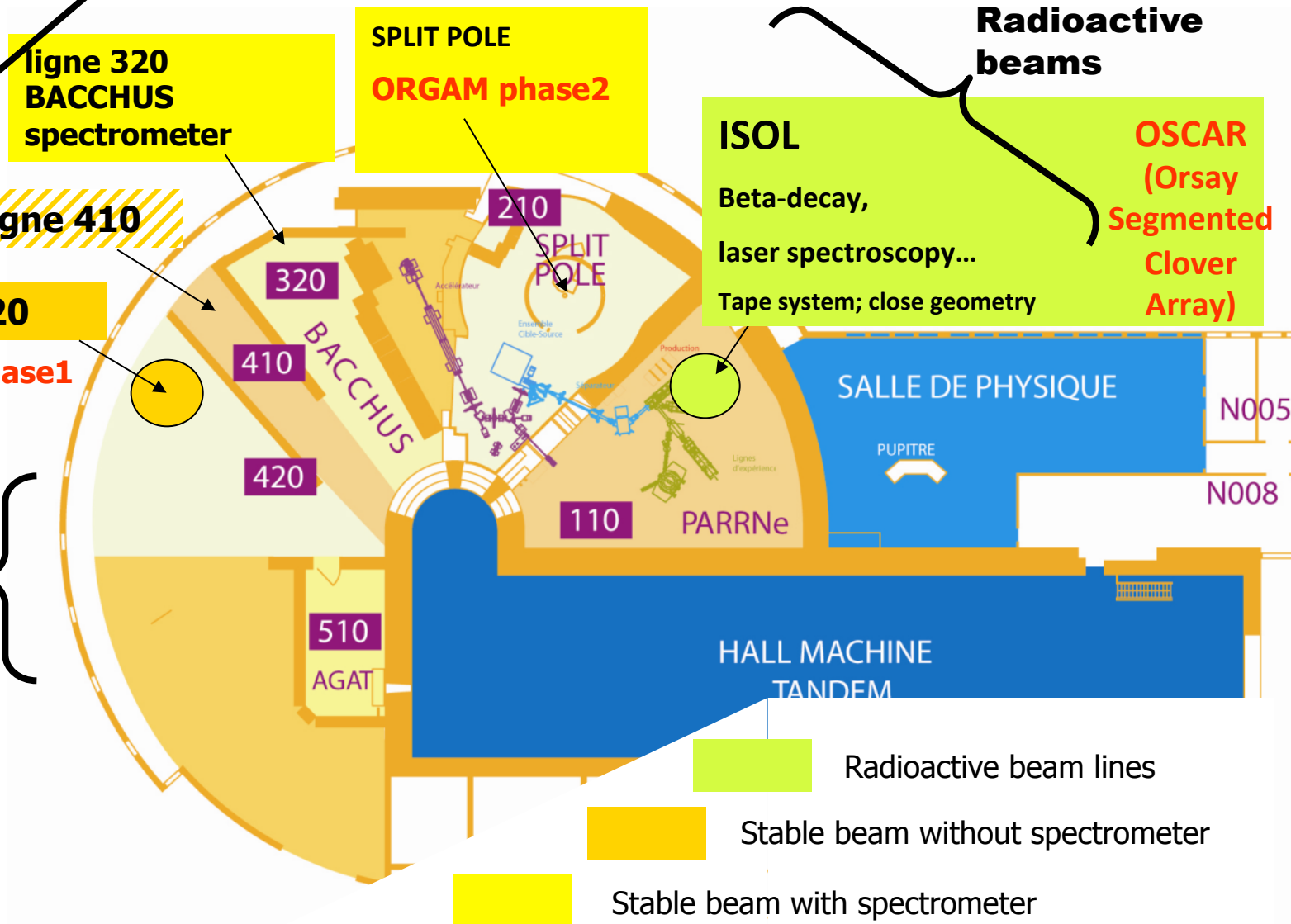
OSCAR
(Orsay
Segmented
Clover
Array)

ligne 410

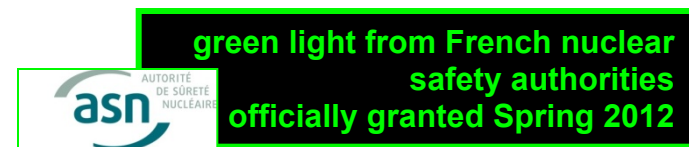
ligne 420

ORGAM phase1

Cluster
beams

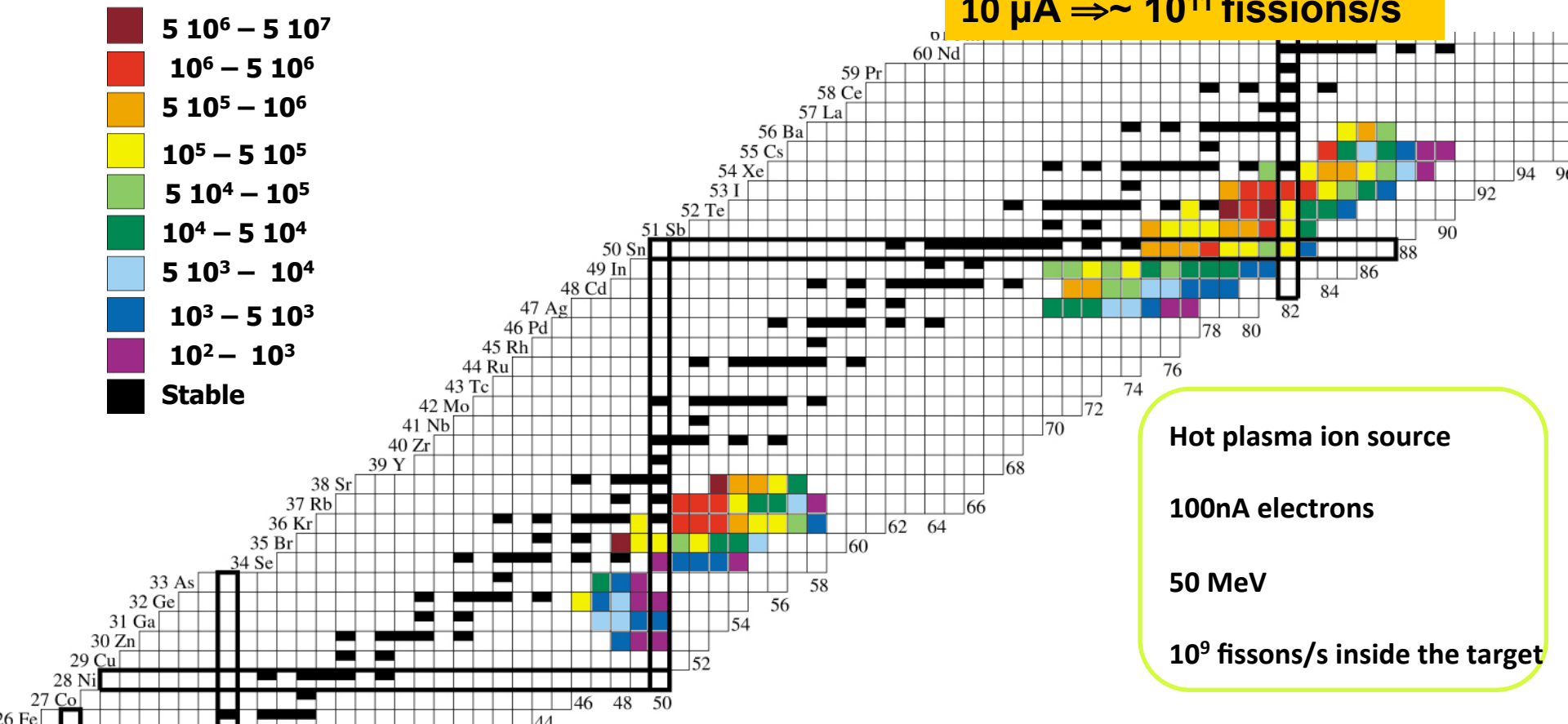


Measured productions yields at the detection point
on line with the PARRNe mass separator
electrons -> gamma induced fission



Production /s/100nA measured in june 2006

nominal intensity:
10 μ A \Rightarrow $\sim 10^{11}$ fissions/s



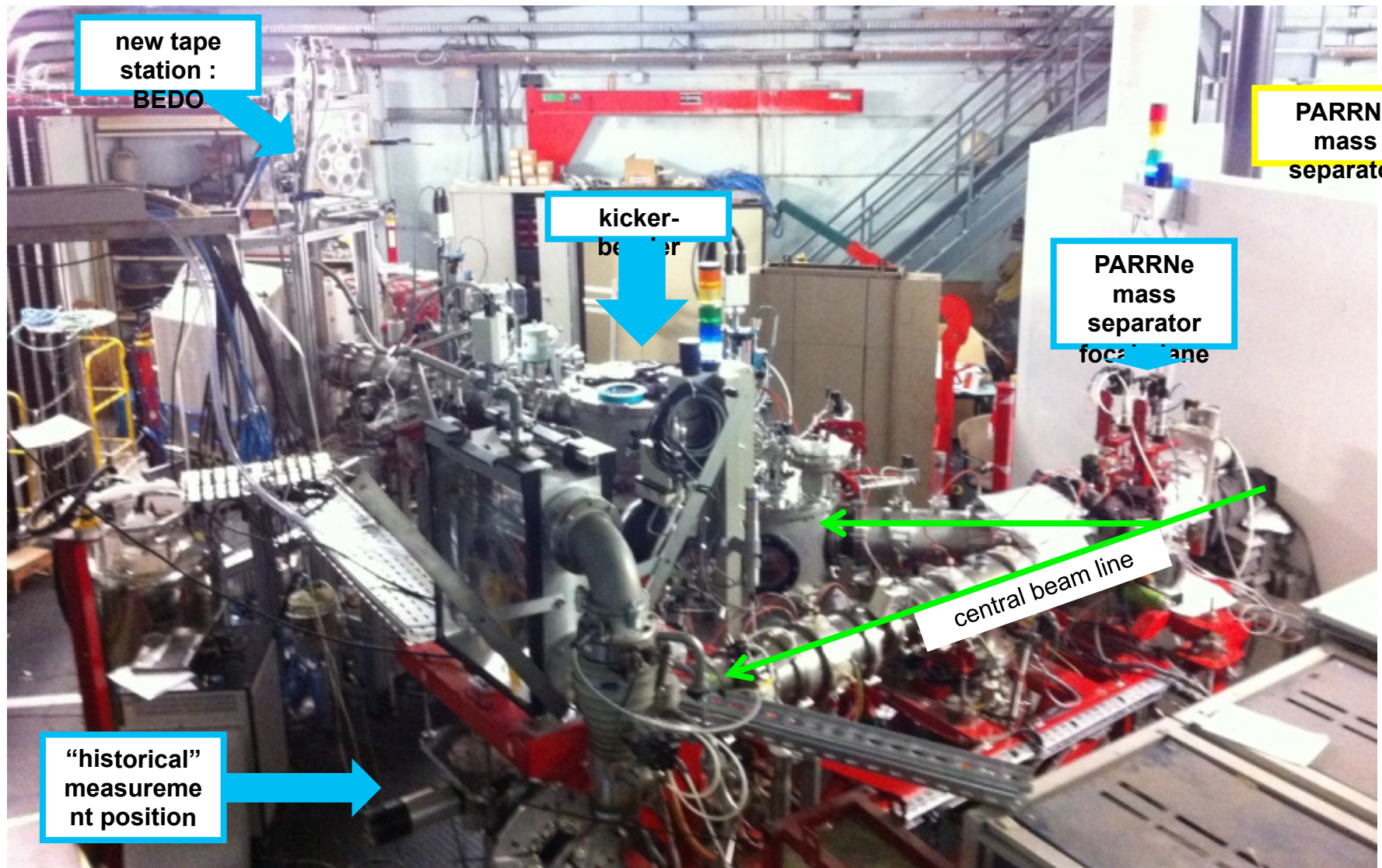
Hot plasma ion source

100nA electrons

50 MeV

10^9 fissions/s inside the target

BEDO : BEta Decay studies at Orsay
construction completed – commissioning beam time last june-july



PAC Members

D. BALABANSKI

E. BALANZAT

R. CASTEN, Chair

S. GREVY

E. KHAN

W. KORTEN

B. RUBIO

J.-C THOMAS

A. TUMINO

C. TRAUTMANN

Exp #	#	D. Balabanski	E. Balanzat	R.F. Casten	S. Grévy	E. Khan	B. Rubio	W. Korten	C. Trautmann	J.-C. Thomas	A. Tumino
IM-SI-8b	1										
N-SI-43	2										
IM-CL-18b	3										
N-SI-44	4										
N-SI-45	5										
I-SI-15	6										
N-SI-46	7										
I-SI-16	8										
N-SI-47	9										
N-SI-48	10										
N-SI-49	11										
I-SI-17	12										
N-SI-50	13										
I-SI-18	14										
N-SI-51	15										
N-SI-52	16										
I-SI-19	17										
N-RJ-1	18										
N-RJ-2	19										
LoI-SI-3	21										
LoI-SI-4	22										
IM-SI-10	20										
		2,00	2,00	3,00	1,00	3,00	2,00	2,00	3,00	2,00	2,00
		2,00	2,00	1,00	3,00	3,00	3,00	3,00	2,00	1,00	1,00
		4,00	4,00	4,00	4,00	6,00	5,00	5,00	5,00	3,00	3,00

Rating categories A, B, C, D

A represents a proposal that is excellent in essentially all respects, proposes important work that is suitable for Orsay, and is feasible, with a well-justified beam time request;

B refers to a proposal that is strong in all the above respects, deserves to be done but is ranked slightly lower than those ranked A;

C refers to proposals that are lacking in some important aspects and may need further development or improvement (these proposals are either not allocated beam time or are allocated only partial beam time);

D refers to proposals that are rated very low and whose beam time requests are rejected.

NA means Not Applicable. This typically occurs where no actual beam request is made. In the present Report, it applies to one of the Lol.

There were no proposals rated D. Note that proposals that contain more than one part may receive different ratings for different parts.

ORSAY PAC Evaluation Criteria and PAC Reports

TITLE

A) Proposal analysis

Importance?

The main motivation of the proposed....

Why in Orsay?

The experiment requires Beam time for a stable ion beam experiment with some risk of failure is more easily available at Orsay than in other facilities.

Need to do in 2011?

The work should be performed as soon as possible in view of ...

Need for full beam time?

Yes, the beam time estimate seems appropriate to achieve the required statistical accuracy.

Feasibility?

Yes, but...

B) Overall opinion

The proposal aims at complementing the spectroscopic information which will allow ... The experiment would add valuable information on ...

C) Rating/shifts: A XXX UBT

March 2012 ORSAY PAC Evaluations

Subject	Spokesperson	Exp #	#	Rating	UBT
Xe in UO2	M. Land	IM-SI-8b	1	A/B	9/9
(6Li,d) astrophysics	Lo. Land	N-SI-43	2	A	21
AGAT	Ch. Land	IM-CL-18b	3	A/C	15/0
X(5) in 168W	Gl. Land	N-SI-44	4	A	15
fusion in lead	W. Land	N-SI-45	5	C	0
response of DPIX	Cl. Land	I-SI-15	6	A/B	9/3
Trojan Horse 7Li(p,alpha)4He	Ch. Land	N-SI-46	7	C/B	0/15
bunch length monitor SPIRAL2	Au. Land	I-SI-16	8	A	6
spectroscopic f7/2 strength	Fr. Land	N-SI-47	9	A	18
Time Dependent Recoil in Vacuum	Ge. Land	N-SI-48	10	A	15
superdeformation in A~40	Id. Land	N-SI-49	11	C/B	0/15
hadron therapy	De. Land	I-SI-17	12	A	3
170Os by RDDS	Lj. Land	N-SI-50	13	A	21
gaseous detectors for SHE	M. Land	I-SI-18	14	A	8
4He and 6He clusters in 18O	So. Land	N-SI-51	15	A	18
isomers in plasma (NEET)	Ha. Land	N-SI-52	16	B	15
PARIS dem. Tests	M. Land	I-SI-19	17	A	15
beta decay of Ge	Du. Land	N-RI-1	18	A	21
beta decay of Sn	Lo. Land	N-RI-2	19	A/C	21/0
chlorine in graphite	To. Land	IM-SI-10	20	A	12
gammas in fission	W. Land	LoI-SI-3	21	B	6*
clusters in fission	Pe. Land	LoI-SI-4	22	NA	NA

ENSAR TNA N°7 access program : statistics

12 projects : till december 2012

I-SI-12 : Test of the GASPARD detector

Spokesperson : Jose Antonio Duenas (Huelva, **Spain**)

N-SI-41 : Lifetime of the 0^+_2 state in ^{160}Er

Spokesperson : Dimitar Balabanski (Sofia, **Bulgaria**)

N-SI-38 : Study of resonant states in 10C, 9B and 10B and their impact on the cosmological lithium problem

Spokesperson : T. Davinson (Edinburgh, **UK**)

N-SI-40 : Measurement of the $^{26}\text{Mg}(p,n)^{26}\text{Al}$ cross section of astrophysical interest

Spokesperson (K. Spohr, Paisley, **UK**)

N-SI-39 : Search for isomeric states in N=80 nuclei

Spokesperson J. M. Regis (**Germany**)

N-SI-39b : Search for isomeric states in N=80 nuclei

Spokesperson J. M. Regis (**Germany**)

I-SI-12b : Test of Hyde

Spokesperson : Jose Antonio Duenas (Huelva, **Spain**)

N-SI-36 : Destruction of ^{26}Al in massive stars

Spokesperson : A. Laird (York, **UK**)

N-SI-35 : Measurement of the quasi elastic barrier distribution of the $^{40,44,48}\text{Ca}+^{120}\text{Sn}$

Spokesperson : M.A.G. Alvarez (Sevilla, **Spain**)

N-SI-51 : ^4He and ^6He cluster decay of ^{18}O states

Spokesperson : N. Soic (Zagreb, **Croatia**)

N-SI-48 : Development of the time dependant recoil in vacuum technique for “radioactive beam geometry

Spokesperson : D. Yordanov (Mainz, **Germany**)

N-SI-50 : Probing the boundary of shape coexistence south of the Z=82: Lifetime measurements of excited states in ^{170}Os

Spokesperson : A. Gorgen (Oslo, **Norway**)

N-SI-44 : Search for X(5) symmetry ^{168}W nucleus

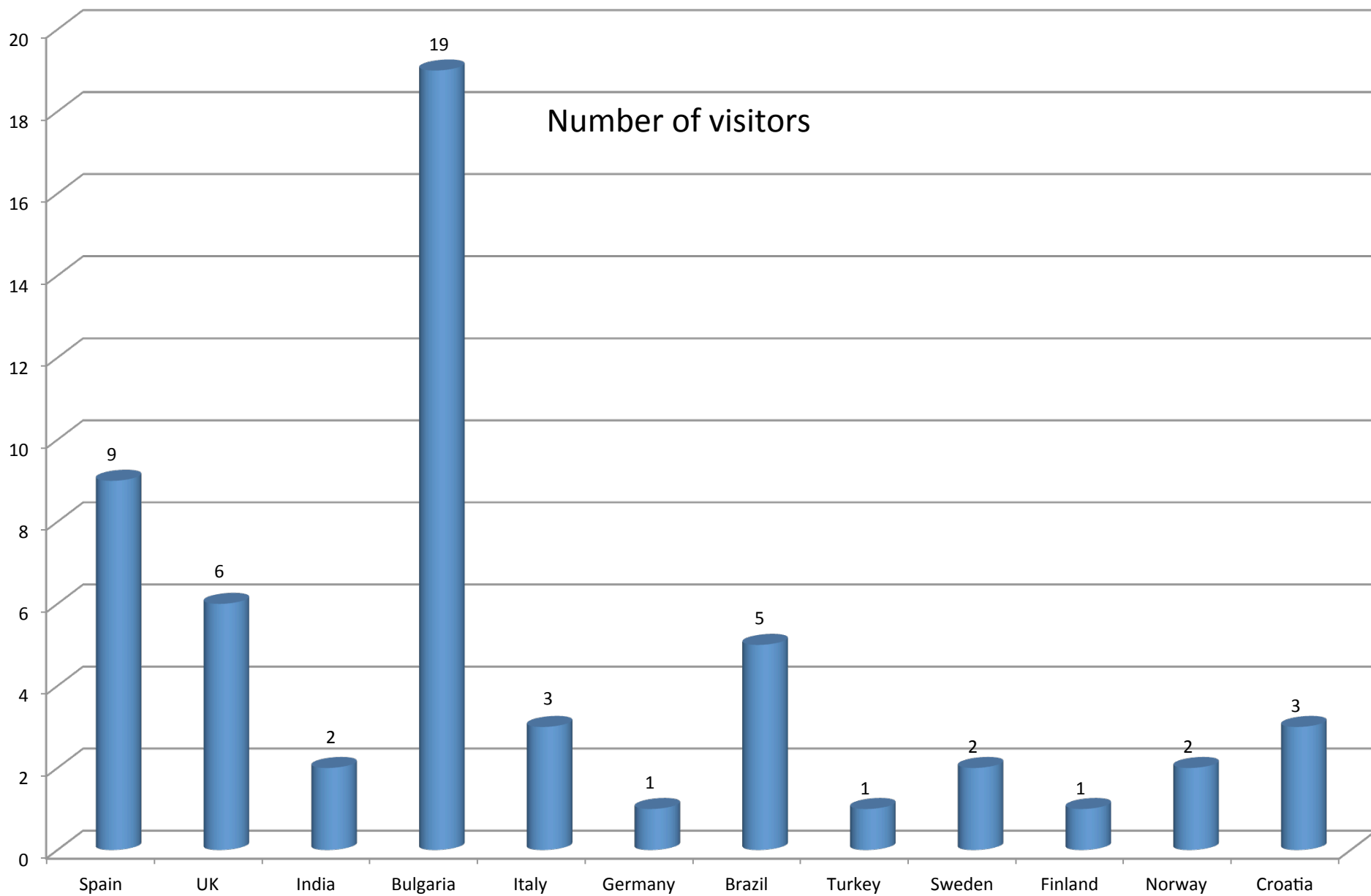
Spokesperson : K. Gladnishki (Sofia, **Bulgaria**)

ENSAR TNA N°7 access program : statistics

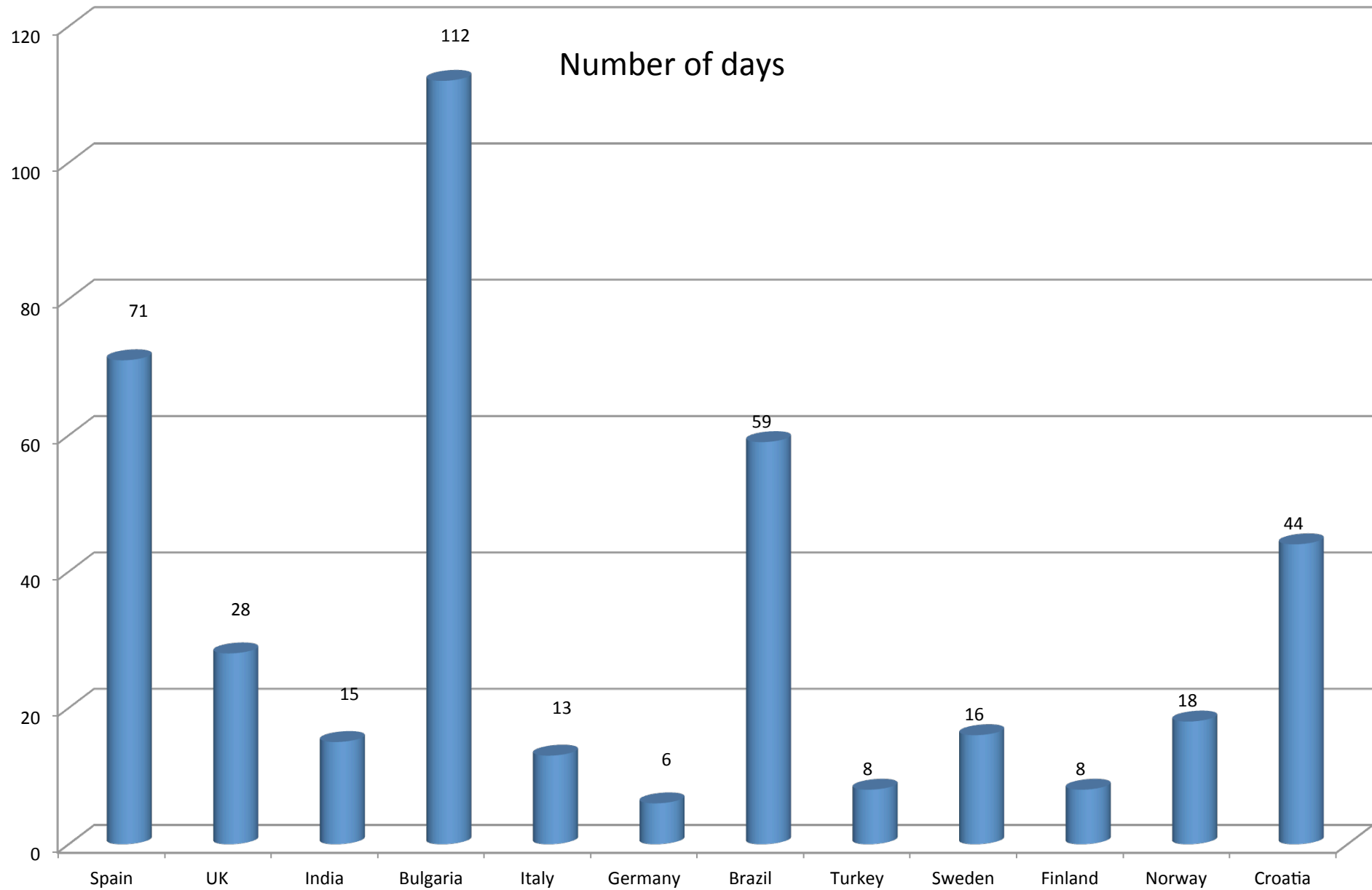
	Scheduled Dec 2012	Over the whole duration
Person days	472	556
Research visits	61	116
Number of projects	12	19
Quantity of access offered under the proposal	1584	1470

We already exceed the minimum quantity of access offered under the proposal
This number could be doubled in case of ENSAR2

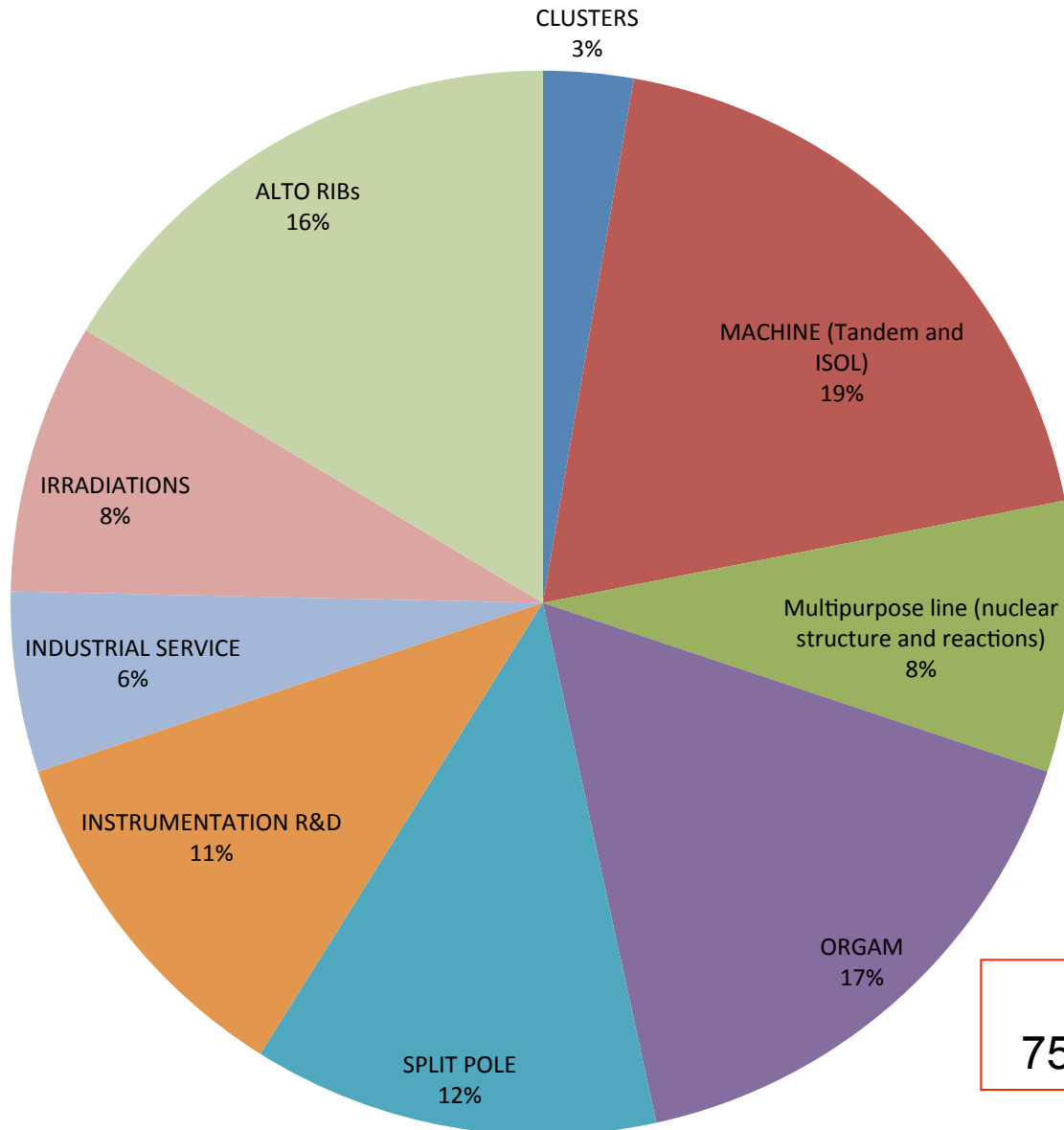
ENSAR TNA N°7 access program : statistics



ENSAR TNA N°7 access program : statistics



year 2012

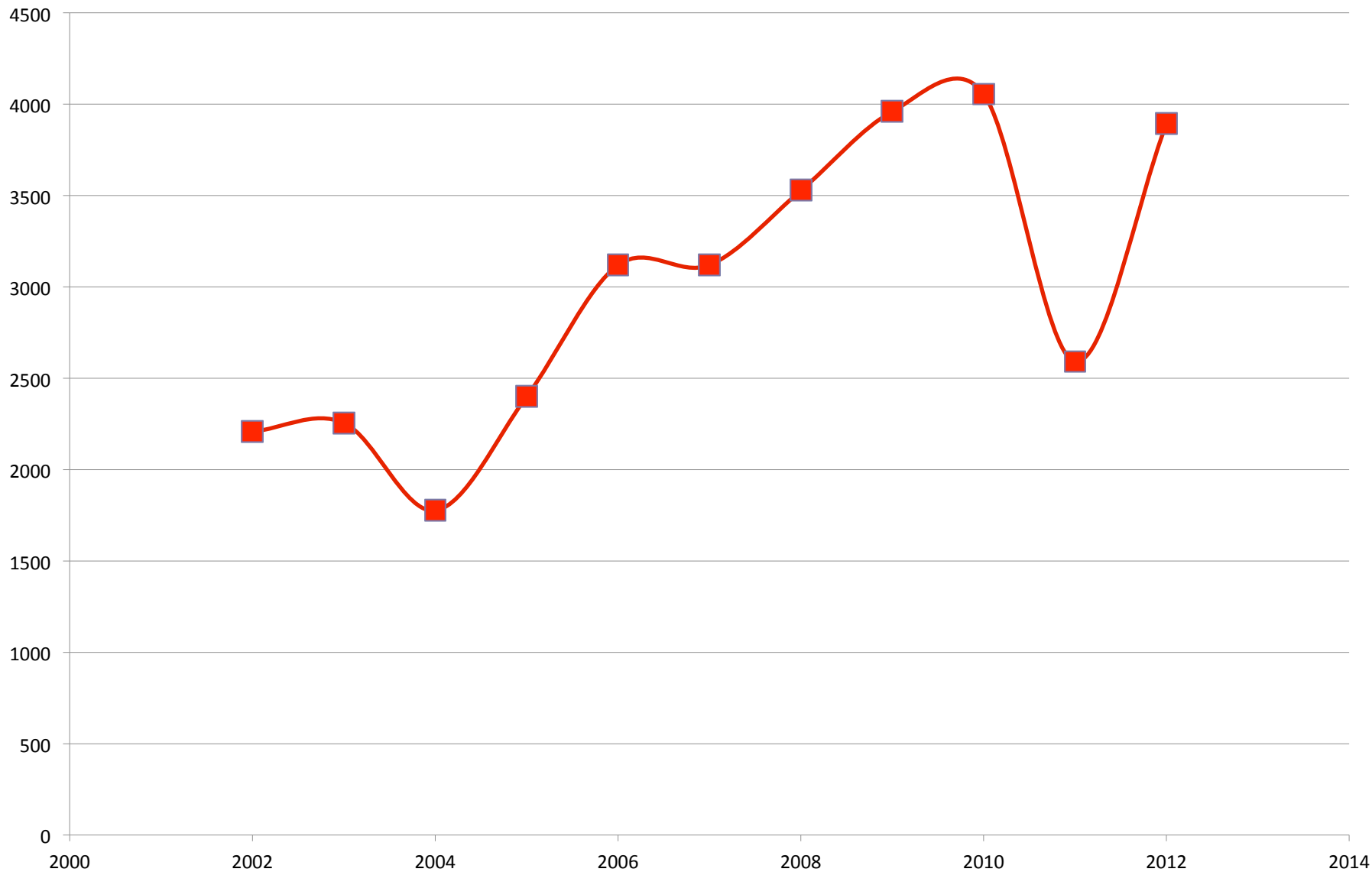


total beam
delivered : 4818 h

25% RIB
75% stable beam

delivered
beam for
physics (on
target):
3894 h

Beam time (hours)

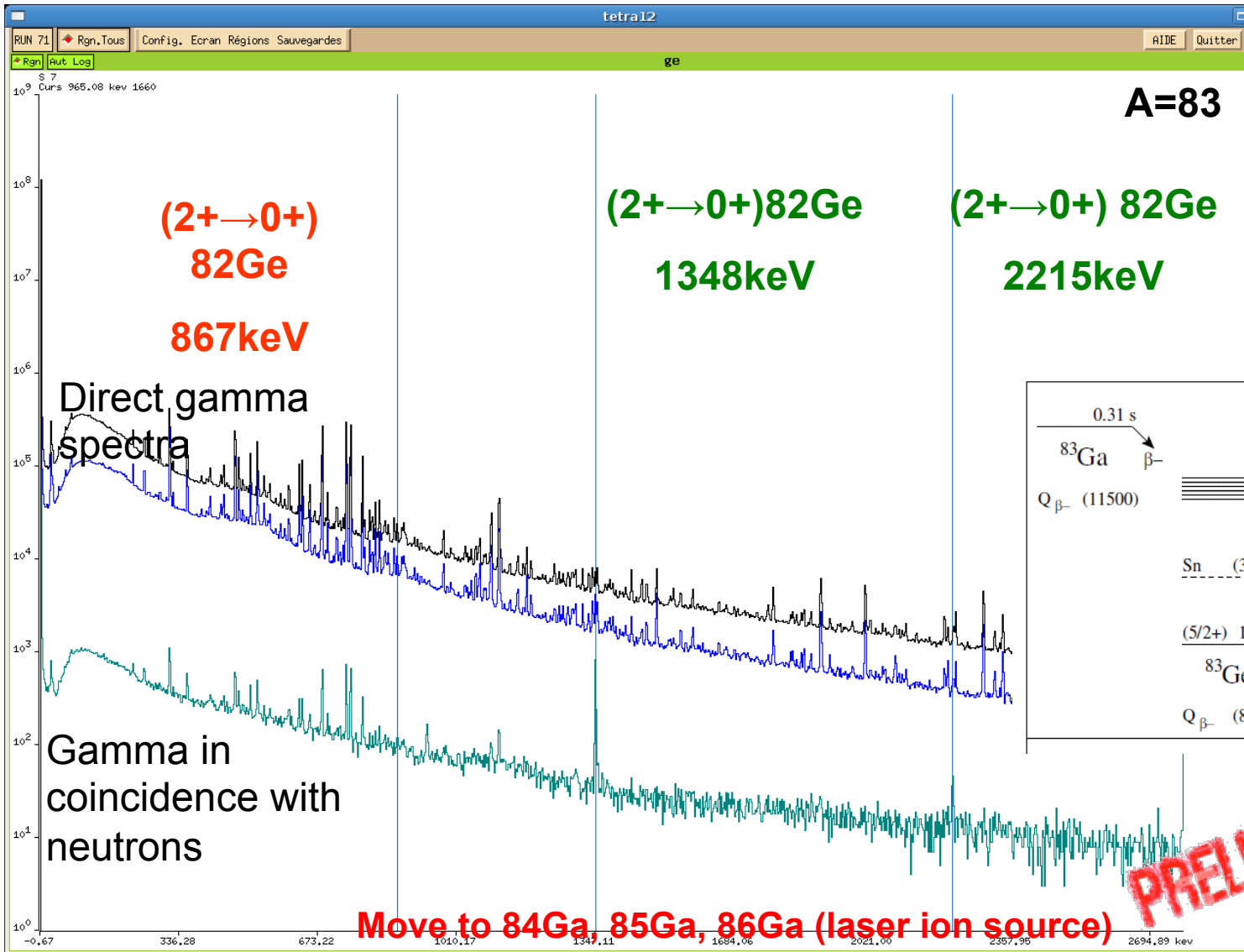


Typical Experiment Report

User Project Title	Lifetime of the 0_2^+ state in ^{160}Er
User Project Objectives	<p>The project aims at the measurement of lifetimes in ^{160}Er. The lifetimes of the 0_2^+ state and of the states belonging to the β-band are of special interest. In a recent experiment the $X(E0/E2)$ branching ratios for these states were measured and the present measurement will make possible the determination of the absolute monopole strength of these transitions and thus the mean square charge radii $\langle r^2 \rangle$ of the states of interest, which can be directly compared to the calculations.</p> <p>A second objective of this experiment is the commissioning of a small array of four $2'' \times 2''$ $\text{LaBr}_3(\text{Ce})$ detectors to work together with the ORGAM array and NARVAL DAQ.</p>
User Project Achievements	<p>(1) The experiment was carried out according to the plan. Four $\text{LaBr}_3(\text{Ce})$ detectors were used together with 14 HPGe detectors.</p> <p>(2) $\gamma\gamma\gamma$ – coincidences following the decay of excited states in ^{160}Er were measured with at least two coincidence γ-rays detected by the $\text{LaBr}_3(\text{Ce})$ detectors.</p>
Difficulties incurred	At the beginning of the experiment there were certain difficulties related to the delivery of the correct beam. The team was compensated for the lost beam time.

Backups

First observation Gamma-neutron coincidence at ALTO.



mixed source

T1/2

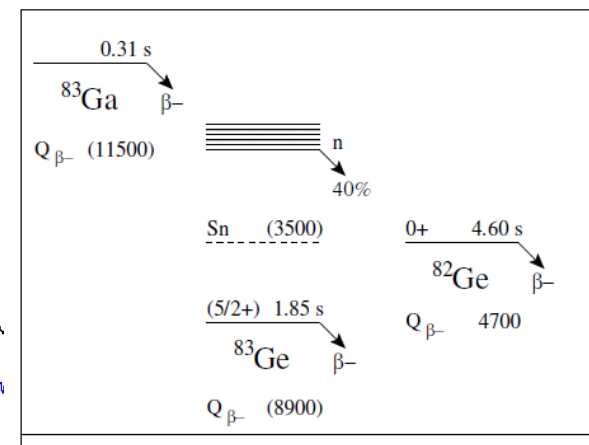
83Br, 2h40

83Se, 22.3 min

83mSe, 70.1s

83As, 13.4s

83Ge, 1.83s



PRELIMINARY

Move to ^{84}Ga , ^{85}Ga , ^{86}Ga (laser ion source)
(the experiment scheduled November 2012)

commissioning runs with ALTO RIBs on BEDO :

Gamma mode (late june 2012),
Neutron mode (september 2012)

BEDO setup
in gamma
mode
4 small
EXOGEN
clovers

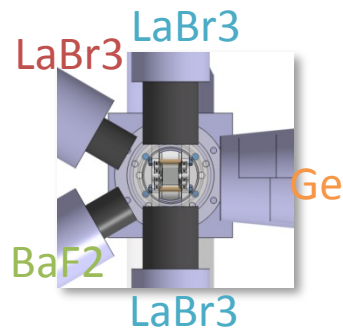
gamma

1

next to
come:

3

fast timing
mode



Distances / source :

- Ge = 40 mm
- LaBr3 = 25 mm
- BaF2 et LaBr3 = 40 mm
- Plastique = 25 mm

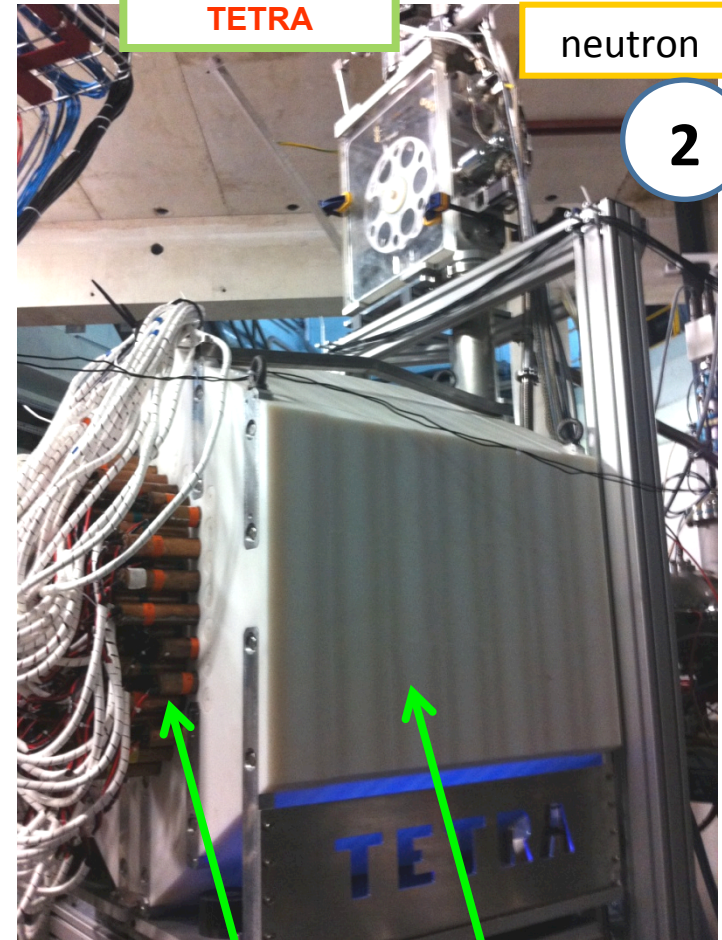
Ge detectors

BGO shields

BEDO setup
in neutron
mode
Dubna neutron
detector
TETRA

neutron

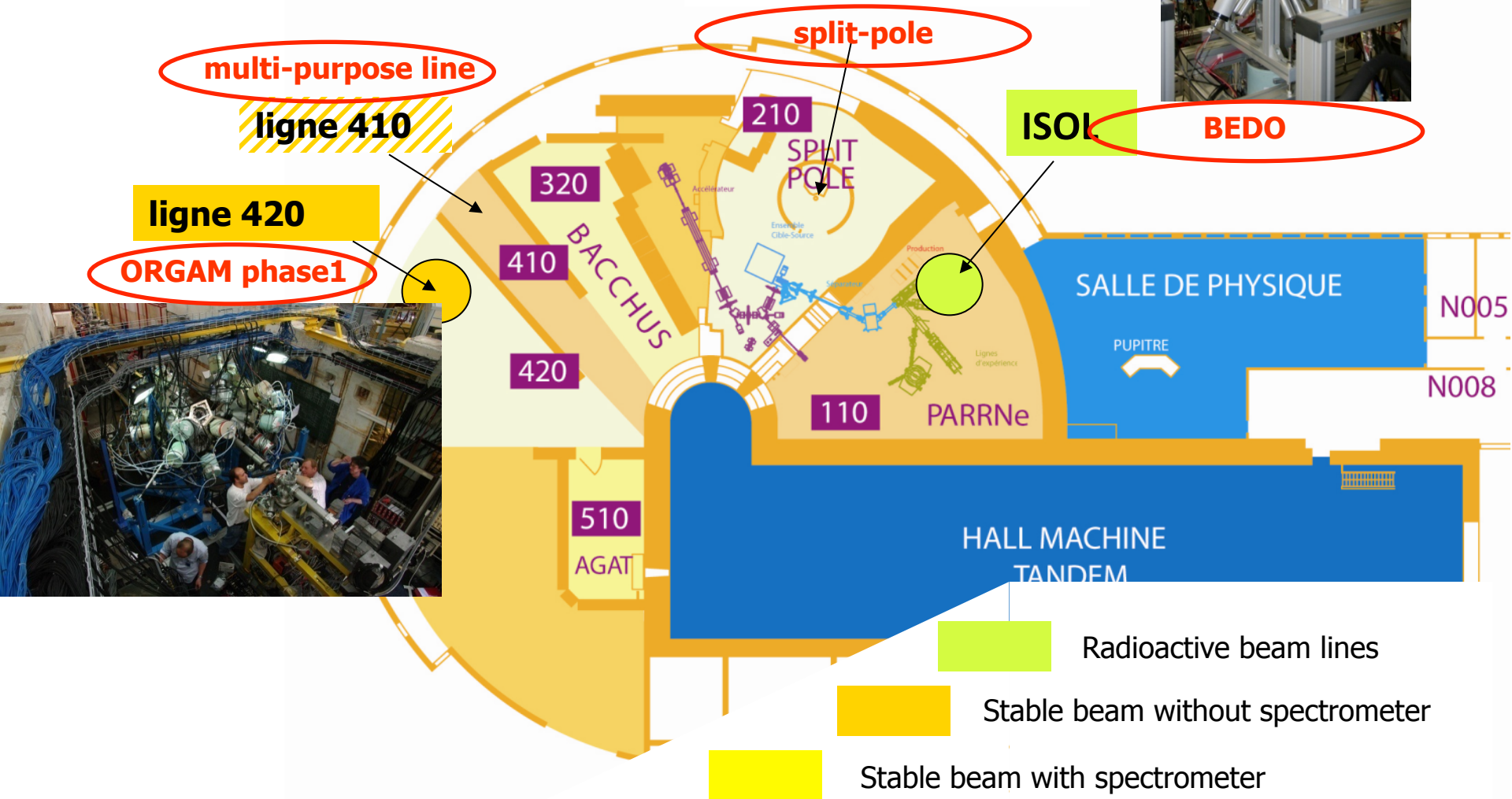
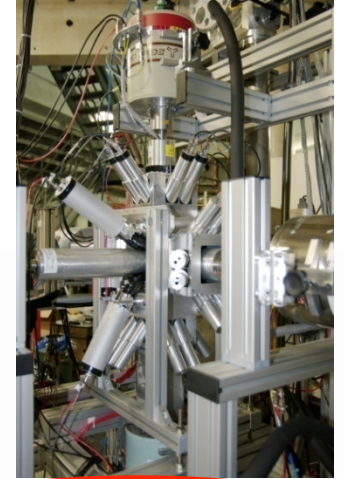
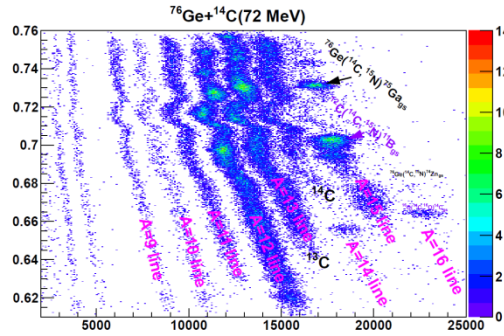
2

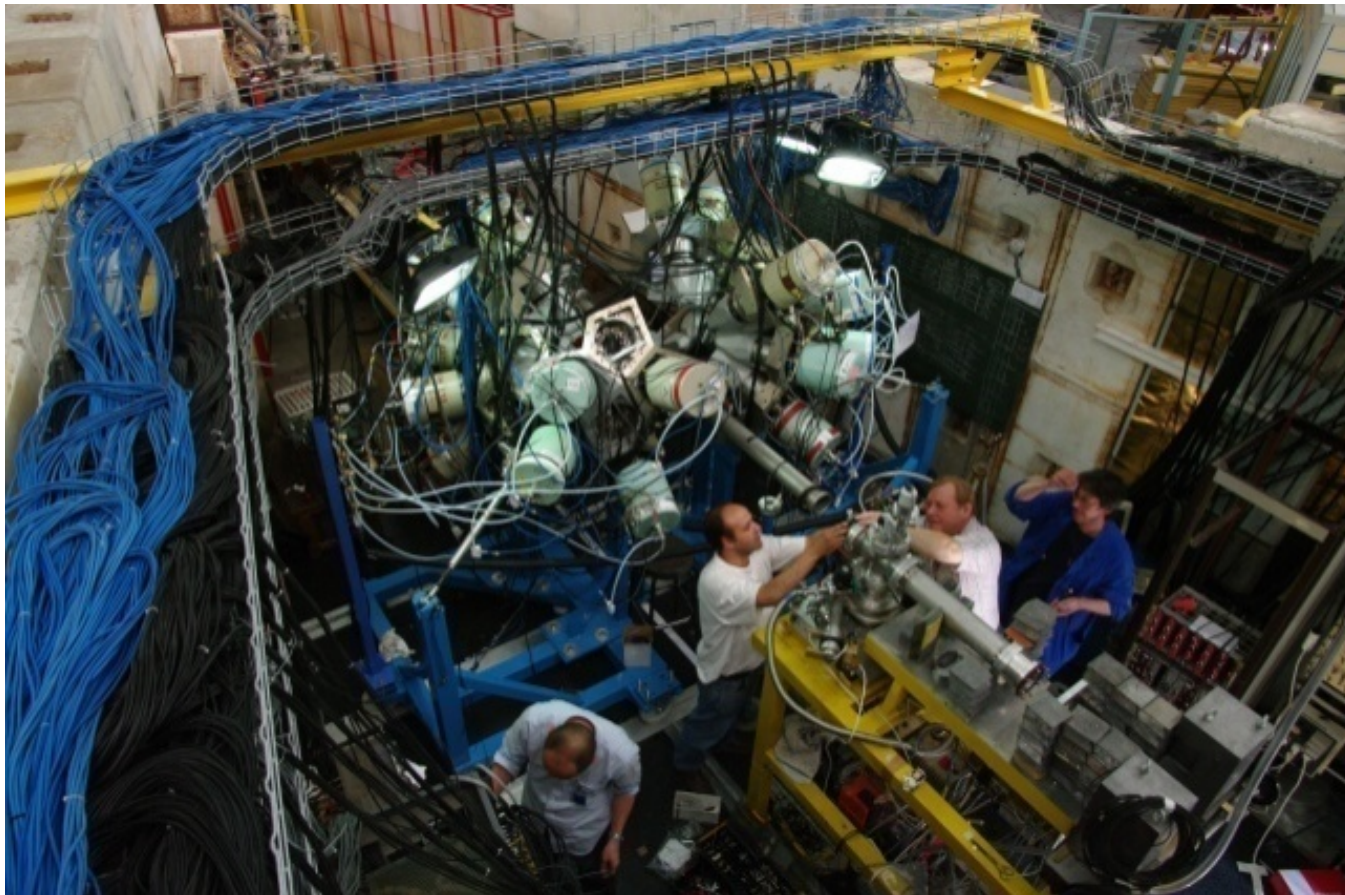


~90 ^3He tubes

borated
polyethylene
shielding

ALTO : main campaigns in 2011-12





beyond ORGAM-1 and 2 : Orsay is
candidate to host the MINIBALL
array for a 6 months campaign (end
2013-2014)

	spokesperson	EXP #	Title
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