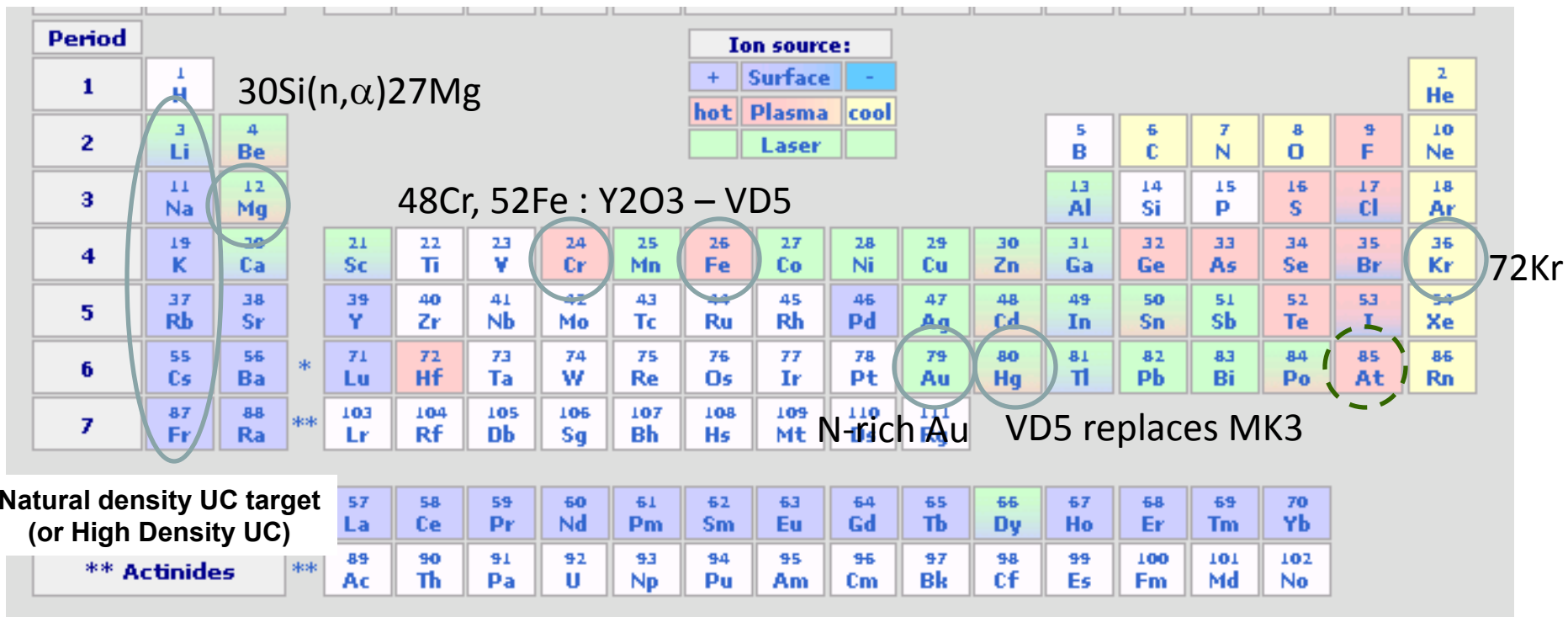


Beams delivered in 2010 and perspectives

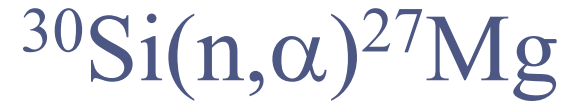
T. Stora

Target and ion Source Development
TISD

Highlights for 2010

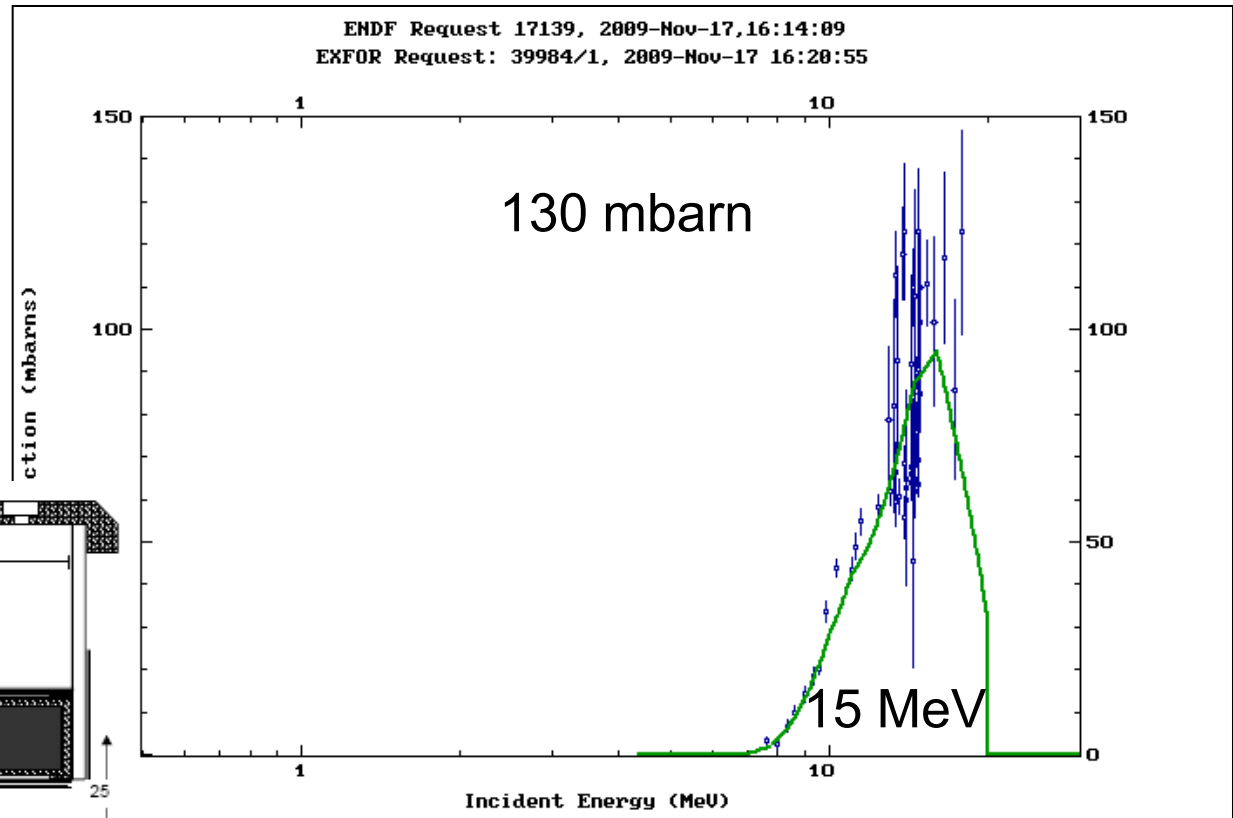
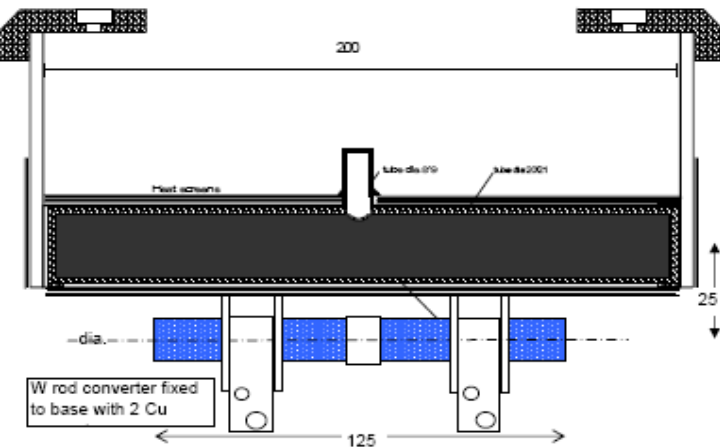


(n,X) reactions with neutron converter



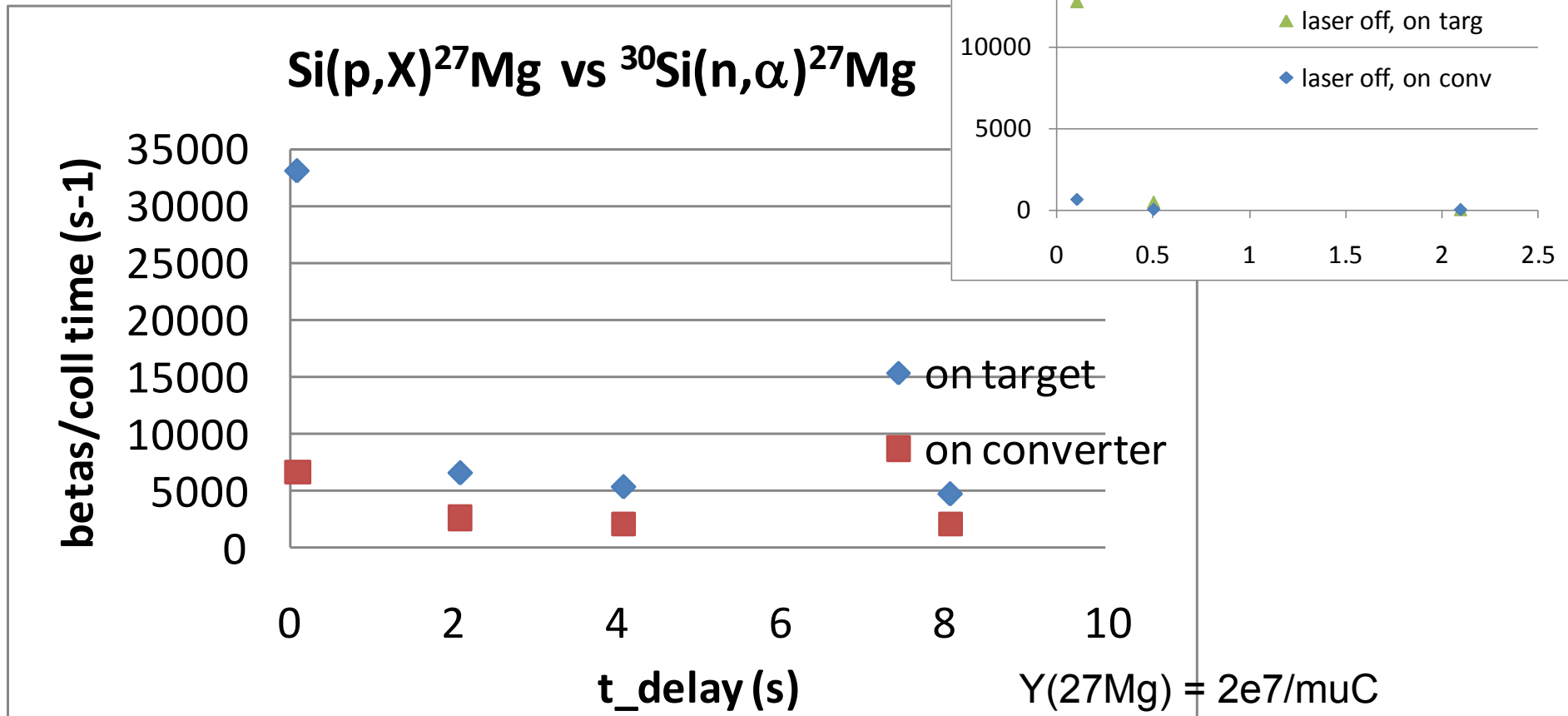
1st estimates : 3-30pA ²⁷Mg⁺, < 100pA ²⁷Al⁺

From last year:



(n,X) reactions with neutron converter

3% ^{30}Si in $^{\text{nat}}\text{SiC}$ target



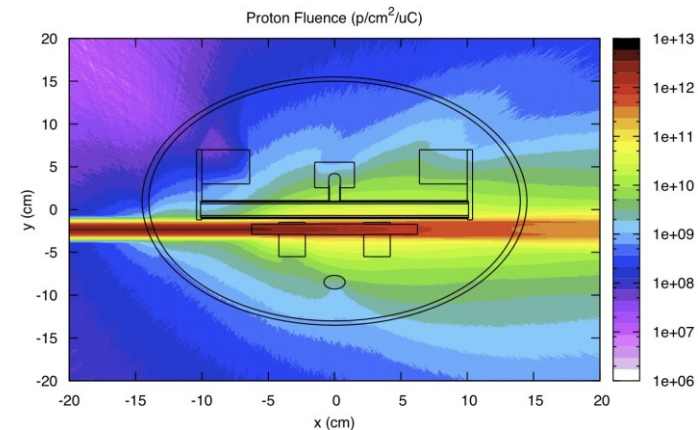
$$Y(^{27}\text{Mg}) = 2e7/\mu\text{C}$$

$$I(^{27}\text{Mg}) = 6\mu\text{A} (2\mu\text{A protons})$$

Possible further developments of ISOLDE n-converter

- Improvement of fission yields (for ex. ^{80}Zn , ^{130}Cd)
- and further reduction of isobaric contaminants (^{80}Rb , ^{130}Cs)

- Present status:
 yield : x3
 impurity in beam : 1/10

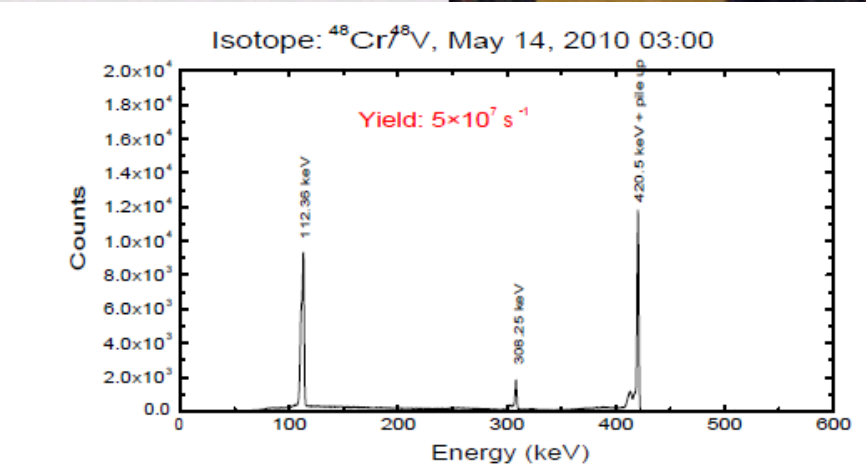
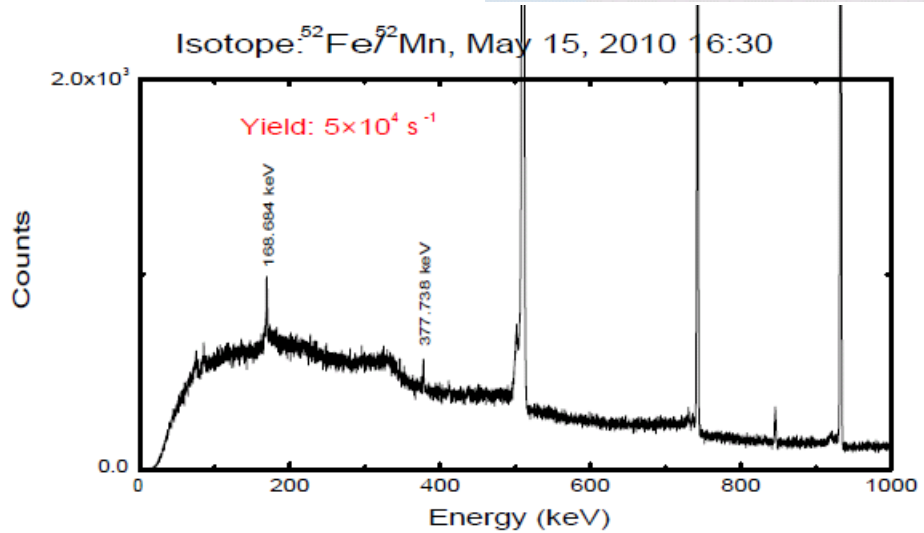
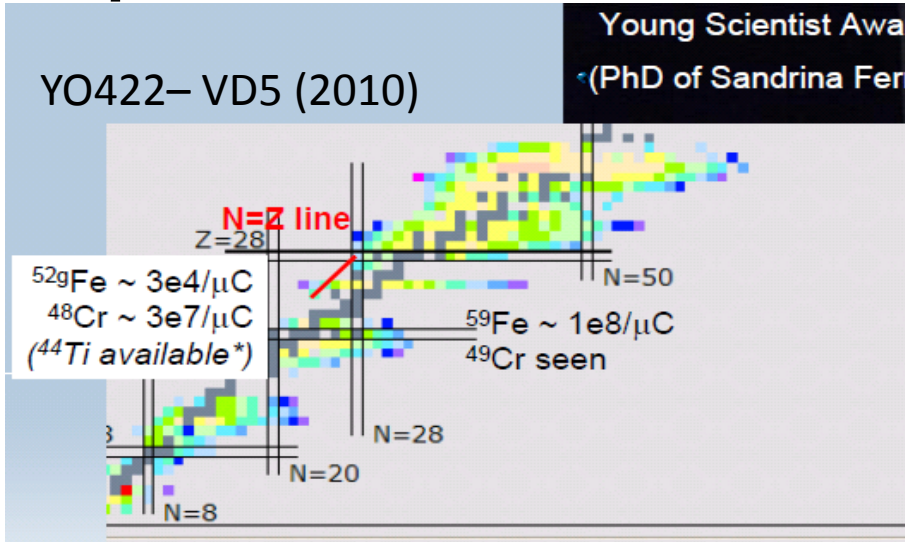


- Our goal : yield x10, impurity 1/100

R. Luis,
 PhD thesis,
 ITN (Lisboa)

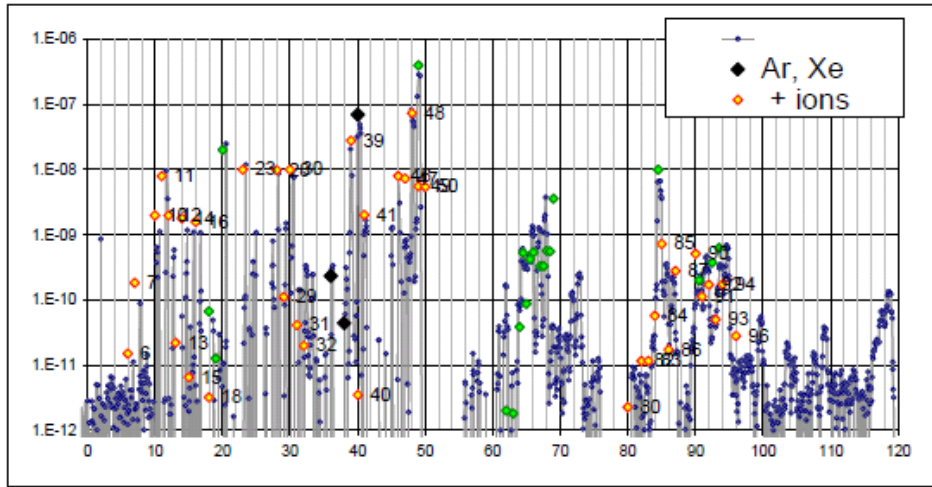
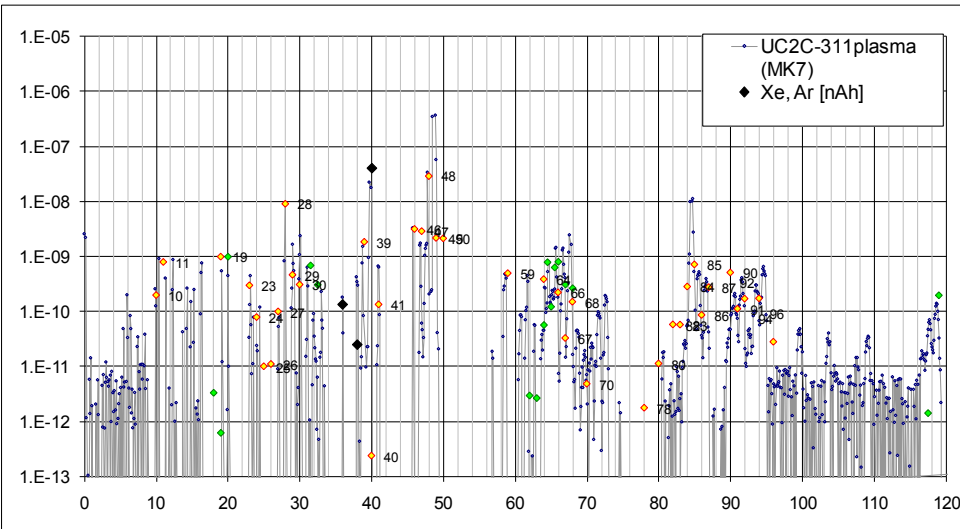
1st ISOL Fe beams at ISOLDE (direct production/extraction)

Courtesy of
K. Johnston,
M. Deicher
et al.



And also $^{96}\text{Mo}^{++}$
ISOLDE Workshop - Nov 2010
(VADIS is made of Mo !!)

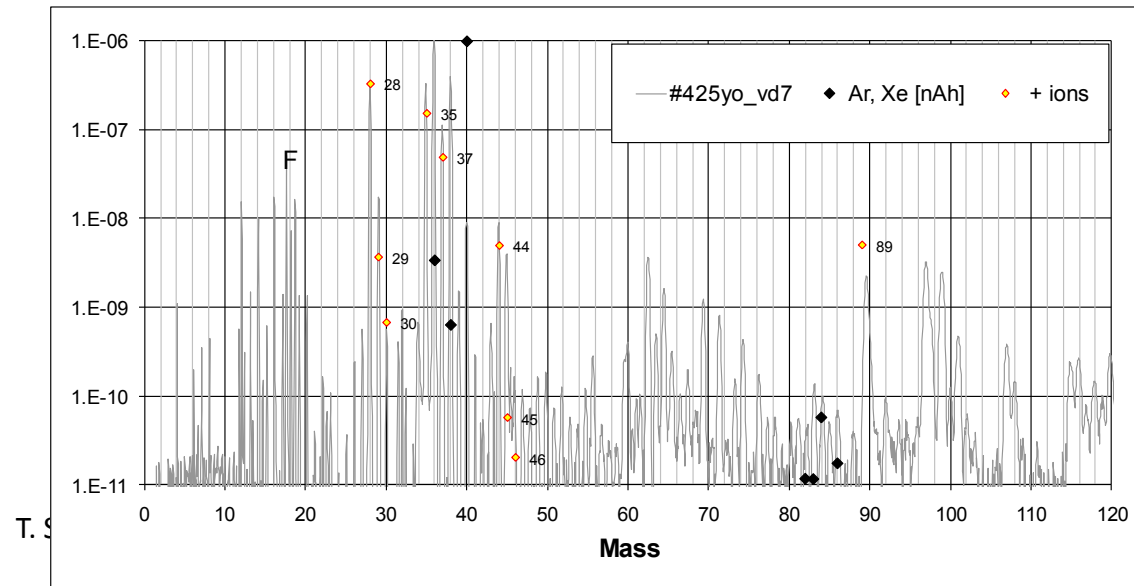
VADIS (replace MK) Ion Sources



UC297 – MK7 (2005)

UC311 – MK7 (2008)

YO425– VD7 (2010)



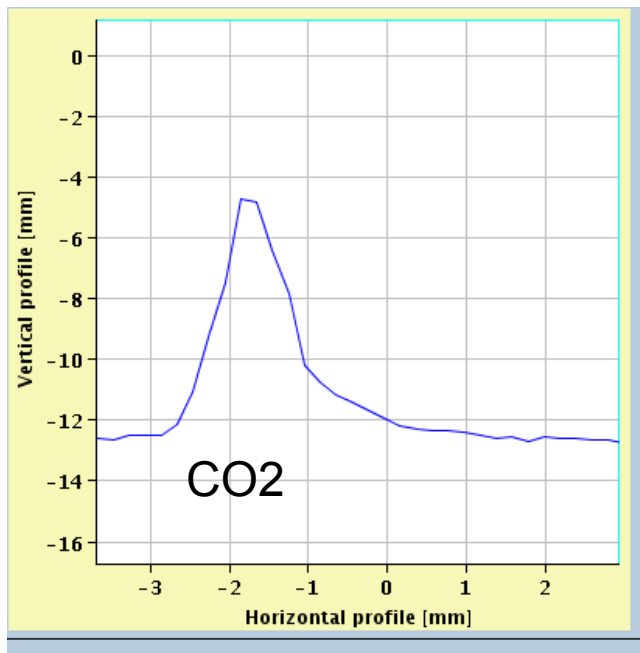
Cleaning up contaminants

UC437–VD7 (2010)

44Ar : yields 5e6/muC (x2 vs database, VD7 tuned to last for 10 days of physics)

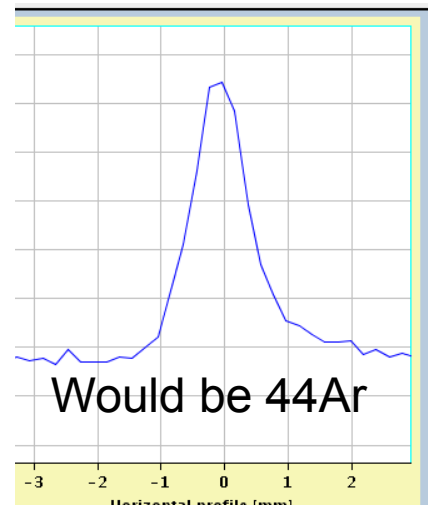
But >6e8pps CO2 (a=44)

And 88Kr++ ~8e7/muC (1/2 vs 88Kr+ database figure)*



Beam in HRS.SC680

Mass resolving power required : 1700 (achieved ~ 3000)



Courtesy of T. Giles

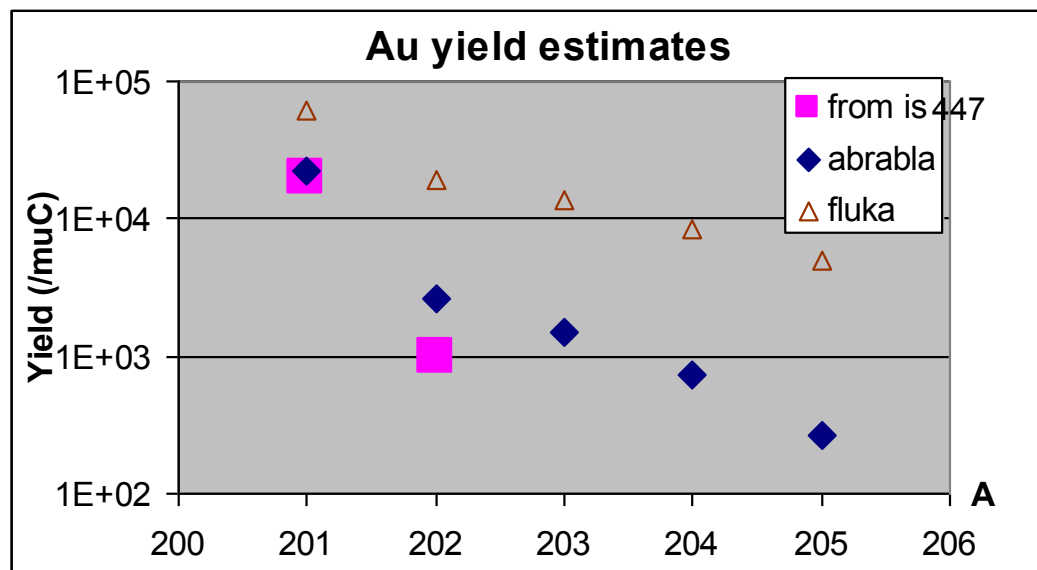
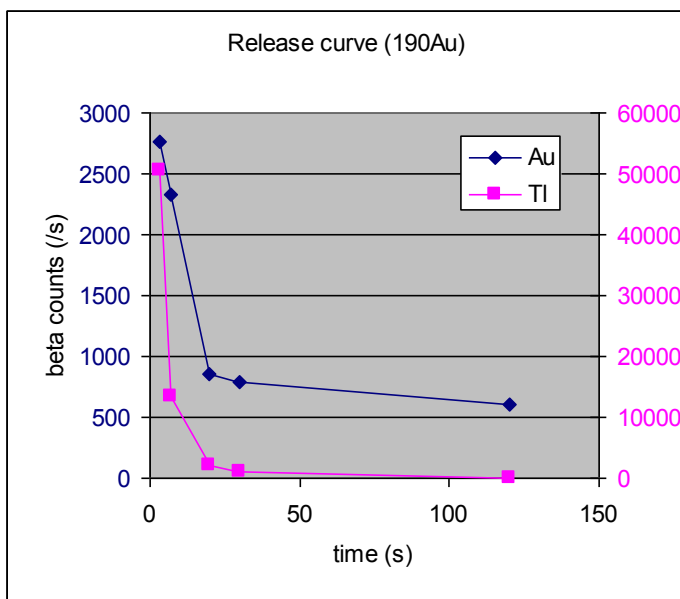
*Possibility to deliver 96Kr++ instead of 96Kr+ ??

Au beams at ISOLDE by RILIS

From UC435 this year

No n-rich Au was identified in July 2008 from UC382

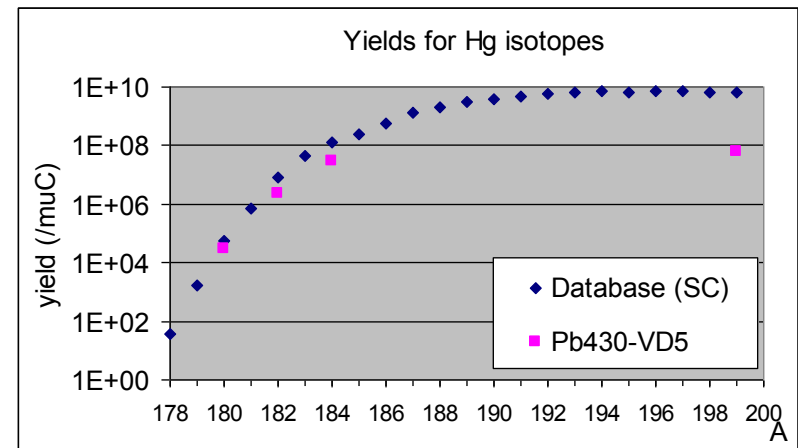
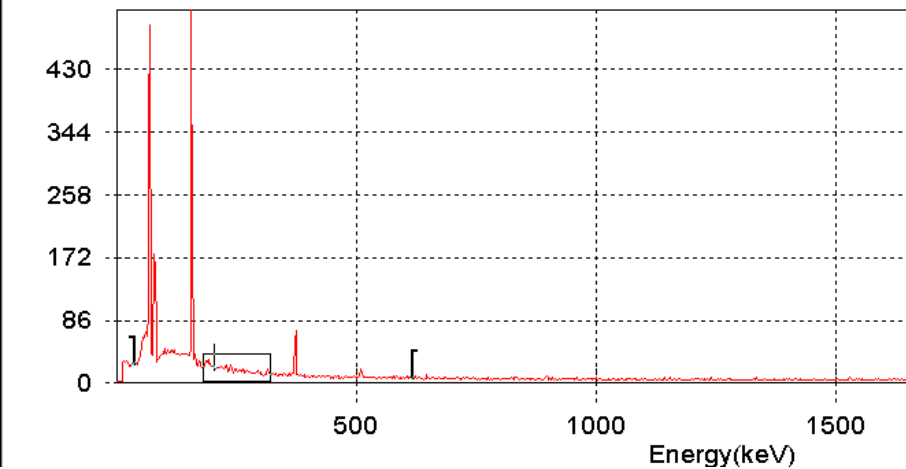
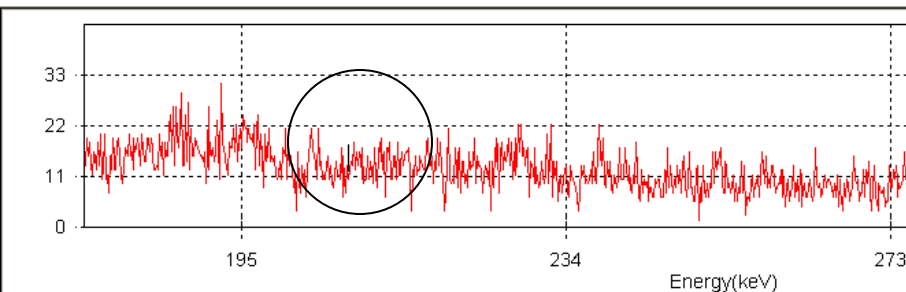
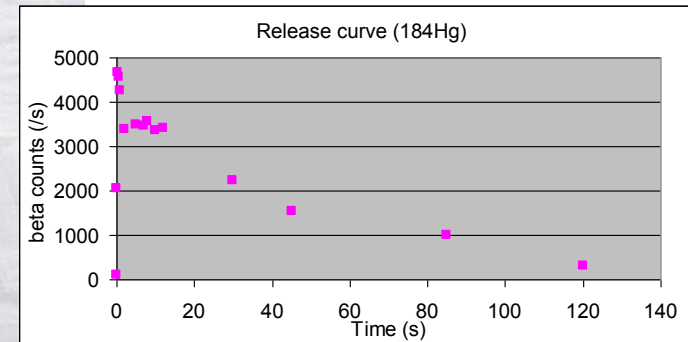
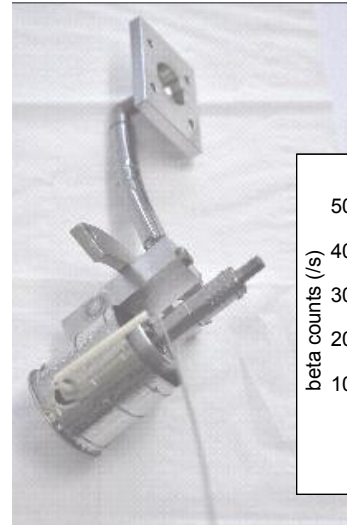
Release curve done on $^{190}\text{Au}/\text{Tl}$



Hg beams from Pb-VD5

Pb430-VD5

199mHg



Tests of Natural density UC

UC340-W with n-converter



1700C, $8e12$ ppp, on target :
 1700C, $25e12$ ppp, on target :

^{143}Cs : $5.3e5/\mu\text{C}$ ^{144}Cs : $1.5e5/\mu\text{C}$
 ^{143}Cs : $5.5e6/\mu\text{C}$ ^{144}Cs : $2.0e6/\mu\text{C}$

To be carefully analyzed

Team & Collaborations

- Dr. P. Suominen : ion sources
- C. Seiffert : chemical evaporation

- R. Luis : neutronics (ITN, Lisboa)

- Dr. A. Gottberg : target materials, incl. Uranium.
- J. P. Ramos : target materials (Univ. Aveiro)

- *Proj. Assoc.* : High power targetry for neutrino physics
- Marie-Curie fellow (mechanic. Engin.): High power targetry

GANIL, IPNO, INFN, PSI (Uranium, ENSAR “ActiLab”) + ORNL, TRIUMF
ITN, PSI (neutronics)
EPFL, Aveiro, ITN (materials)
ESS, SINP (high power targetry)

Some workshops of interest

[Http://indico.psi.ch/event/erawast](http://indico.psi.ch/event/erawast)
Deadline(s) early 2011



EUROPEAN SPALLATION SOURCE

4th HIGH POWER TARGETRY WORKSHOP

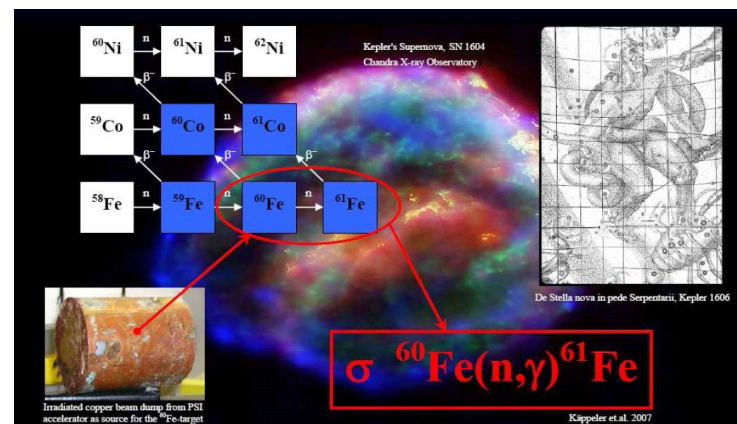
Hilton Malmö City Hotel
Malmö, Sweden
2nd May - 6th May 2011

2nd workshop on

Exotic Radionuclides from Accelerator Waste for Science and Technology

29.8.-2.9.2011 at Paul Scherrer Institute Villigen, Switzerland

Application fields:
Nuclear Astrophysics
Basic Nuclear Physics



[Http://www.ess-scandinavia.eu/hptw](http://www.ess-scandinavia.eu/hptw)
Deadline(s) early 2011



We are making

every effort to



deliver
the
beam

Thank you !

of your dream !