

Standing group for the upgrade of ISOLDE – GUI 2007

Priorities for TISD

Standing group for the upgrade of ISOLDE – 2007

- **Discussed at the last GUI (2006):**

- Graphite line V2.0 for Ni, Cu beams with Ta or Nb cavity

Ta RILIS cavity (UCx-333, no C line required by Physics) for long lived Cu and In suppression.

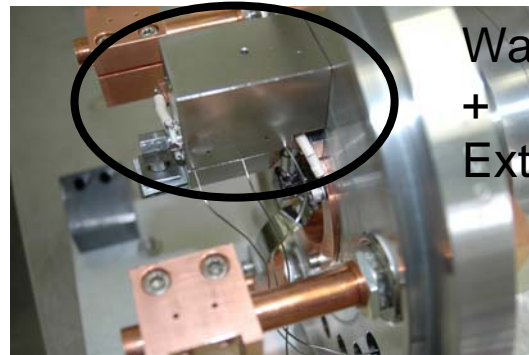
- 2-transfer lines geometry



- Negative ion source : F, At beams. *Online in November 2006 ?*

KENIS (Cs from CsCrO₄ tested offline). New IrCe₅ alloy prepared. F implantations in nanomaterials

- Quartz line V2.0 : Cd beams for Cs suppression. *New temperature range. To be tested.*



Water cooling
+
External oven

Discussed at the last GUI (2006)

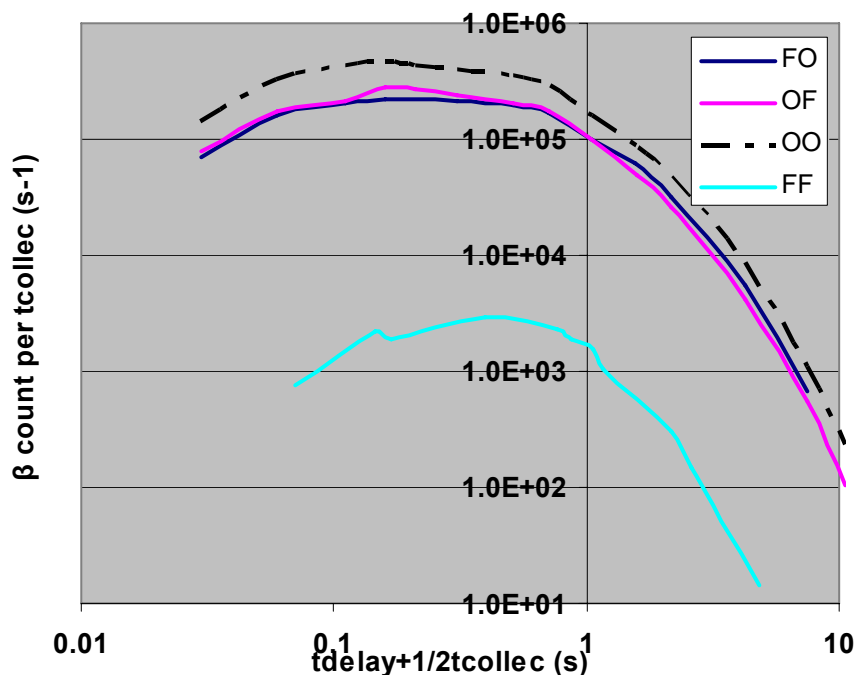
- 3 developments to be chosen amongst:
 - C line v2.0 for short lived metal ions (Ni, Cu, Au, etc): ISOLTRAP
 - Minimono/Nanomaterials for C, N, O beams: REX
 - New SiC (Ti, Si foils) with RILIS/Quartz for $^{22,23}\text{Mg}$ beam and Na suppression: COLLAPS
 - LIST (Cooling+Laser): to link to n-rich Te and suppressed La, Cs (REX, COMPLIS)
 - *RILIS: Scheme for Po*

CaO344 online Apr 2007

Bivalve

³⁵Ar

O: Open
F: Closed



Closed valve

leak rate : 0.3%

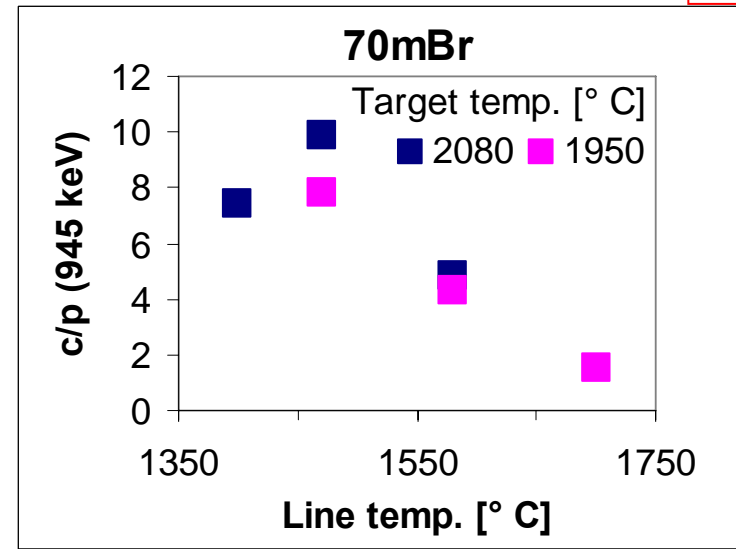
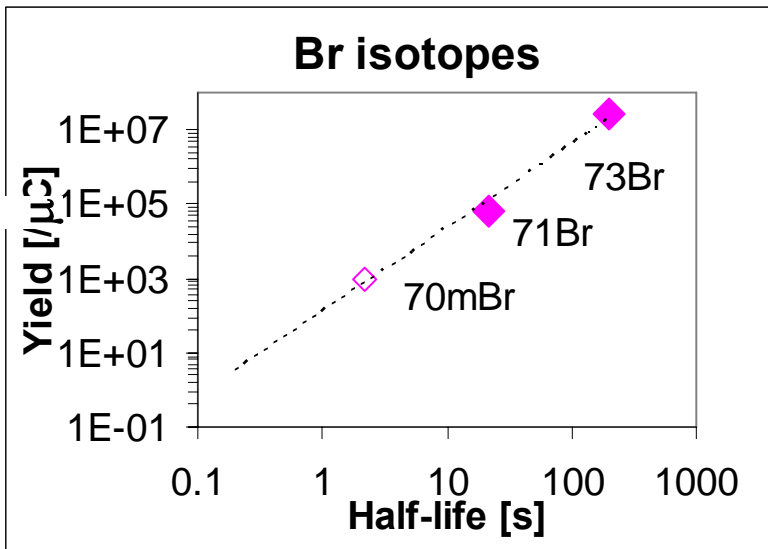
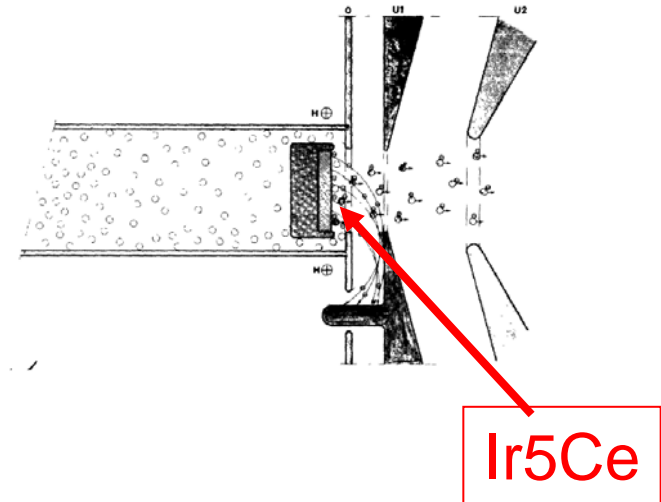
Ratio $^{34}\text{Ar} : 95\%$
(OO)/(OF+FO) $^{35}\text{Ar} : 83\%$

Symmetry : $^{34}\text{Ar} : 94\%$
(FO)/(OF) $^{35}\text{Ar} : 92\%$

Nb-343 online Nov 2006

Negative

- n-rich Cl, Br, I isotopes (UCx 263 subm. to EPJ A)
- p-rich Br isotopes, Cl

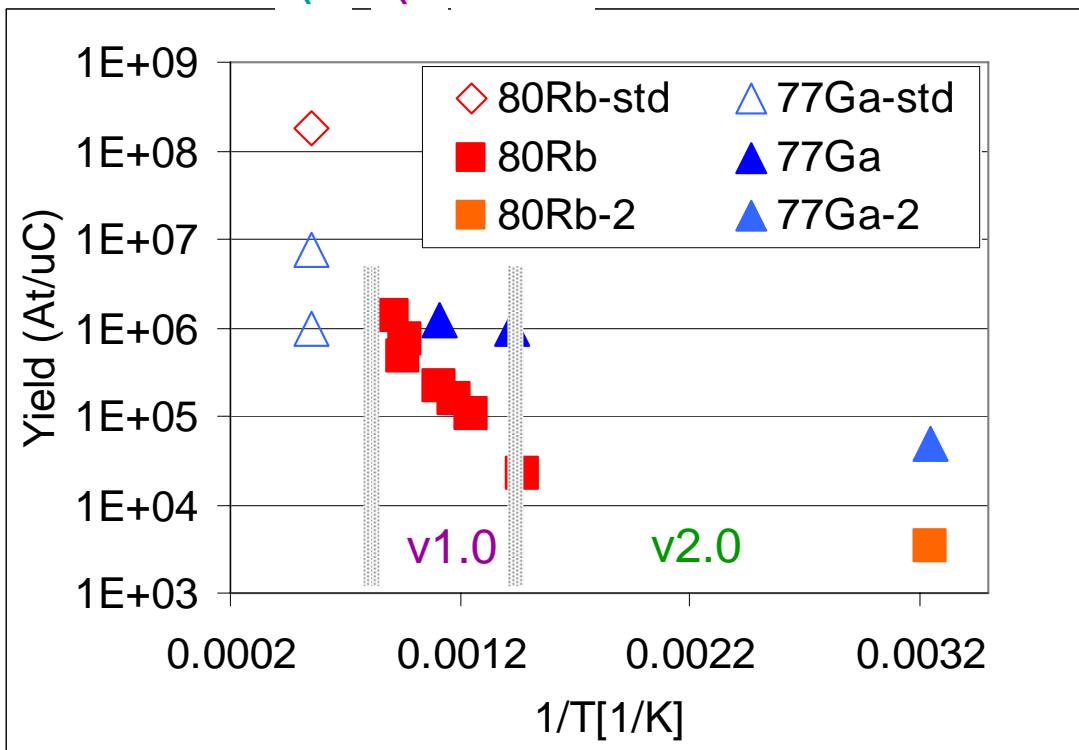


M. Menna , R. Catherall, L. Fraile , H. Jeppesen, K. Johnston, J. Lettry, T. Stora

UCx-338 online Oct 2006

Quartz v2.0

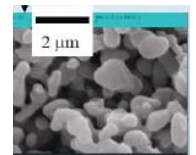
1800 °C
1100 °C
700 °C
550 °C
300 °C



| Isotope | Proto # | Yield (/μC) | Ref yield |
|---------|---------|-------------|-----------|
| 8Li | v2.0 | 1e5 | 4e7 |
| 21Na | v2.0 | 9e2 | 2e4 (SC) |
| 46K | v2.0 | 5e5 | 5e7 |
| 126Cs | v2.0 | 2e3 | 1e8 (SC) |
| 114In | v1.0 | 3e5 | 2e6 |

Ongoing developments

- Minimono for C, N, O beams: CaO-236 Apr 07
- SiC/RILIS for $^{22,23}\text{Mg}$ beam: SiC-353 May 07
 ^{21}Mg measured at COLLAPS
(record $1\text{e}6$ ^{22}Mg / μC at ISOLDE;
 $2\text{e}4\text{pps}$ ^{21}Mg at COLLAPS)
- LIST (Cooling+Laser): low work function cavities offline instead. Ongoing.



Ongoing developments

- For Negative ion sources (Lols 70gBr, 30S) :
Upgrade (further) of the offline separator with fast valve/FC for effusion
- For selective thermochromatography (Tl, Hg) :
Extended temp range prototype (v3.0)

Future developments

- For ^{44}Ti (LoI): tests with MK8(W), MK5, MK5+CF₄
- For selective thermochromatography :
New materials (ORNL)

Longer term R&D

- Development of UCx targets:
Contact made for JRA partners, European networking + FP7 financing (Marie Curie)
- Refractory elements at ISOLDE :
Need to investigate the feasibility of gas cell+LIS developed at Leuven

And priorities...

- 3 items should be selected to get priority.