

Standing group for the upgrade of ISOLDE - 2006

- **Priorities set in 2005 for 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.

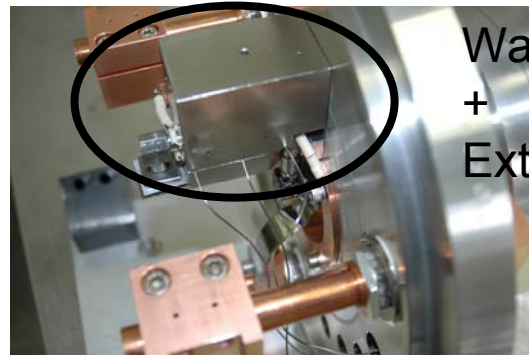
- 2-transfer lines geometry : *Ongoing assembly. Online in November 2006 ?*



- 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

Some extras done in 2006

- SiC334 Target. Similar or slightly better than SiC287 (TRIUMF). Not yet done LaF for ^{17}F beam, RILIS/Quartz for Mg beam.
- Minimono tests on the offline separator.

Targets	Measurements	Isotopes measured (data treated)
320 UC	9 (3)	25Na , 26Na, 29Mg, 31Mg, 75Ga , 94Sr, 140Cs, 142Ba/CS
319 CeO	0 (0)	
321 ZrO	4 (0)	26Na, 58Cu ,59Cu, 70Ga
322 UC2	0 (0)	
323 Ti	4 (0)	38Ca+19F, 38K, 39Ca, 39Ca+19F
324 SiC	11 (2)	19Na, 20Na, 21Na , 23Mg, 25Al, 26Al, 26Al+19F, 26Na , 27Al+17F, 28Al, 28Al+19F
325 UC	3 (3)	140Cs , 25Na , 134Sn+34S
320 UC2	9 (5)	25Na , 26Na, 29Mg, 31Mg, 52Mn, 57Mn , 59Mn , 75Ga , 142CS
326 ThC n	8 (1)	26Na, 114In, 122In, 124In, 126In, 127In, 130Cs, 142Cs
329 UC2 quartz n	6 (4)	75Zn , 79Zn , 80Rb , 80Zn , 89Rb, 114In
328 Nb	4 (0)	76Sr+19F, 77Sr+19F, 78Sr+19F, 79Sr+19F
326 ThC n	8 (0)	26Na, 114In, 122In, 124In, 126In, 127In, 130Cs, 142Cs
330 UC2 quartz	2 (1)	122Cd , 126Cd
333 UC2	8 (2)	69Cu, 70Ga, 71Cu, 72Cu , 73Cu , 73Ga, 75Cu, 75Ga
303 UC2	9 (0)	126Sb, 128Sb, 131Sn, 132Sb, 133Sb, 134Sb, 135Sb, 136Cs, 137Cs
256 Pb	25 (0)	6he, 41Ar, 44Ar, 184-208Hg,...
334 SiC	24 (8)	8Li, 17F , 17F+27Al, 18Ne, 19F+19F+19F+25Al, 19F+19F+25Al ...
333 UC2	3 (3)	68Ga , 69Cu , 72Cu
335 Ta	1 (1)	8Li
286 LaC2	4 (0)	106In, 106Sn, 108In, 108Sn
336 UC n	2 (0)	138Xe, 144Xe
338 UC2 quartz	16 (4)	8Li, 21Na, 22Na, 46K, 77Ga, 80Rb, 81Rb, 82Rb, 94-98Sr, 126Cs, 130-146Cs
337 CeO	4 (2)	112Te, 114Te, 117Te, 118Te
Total 23	184 (39)	

Next developments for 2007

- 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

Brief summary of quartz line unit (version 2.0)

- Yield of ^{142}Cs : 2.58×10^5 atoms/ μC
 - Suppression by 3 orders of magnitude when compared to a standard UC_2 -C target.
 - Little effect of the cooling system of the transfer line on the release of Cs. (not cold enough?!)
- $^{80,81,82\text{m}}\text{Rb}$ not seen
- $^{94-98}\text{Sr}$ seen. $^{94-98}\text{Rb}$ (fed by Kr?): half life & gamma ray measured.
- Other isotopes measured:
 - $^{21,22,26}\text{Na}$: not seen
 - ^8Li : not seen
- ^{46}K yield estimated to be: 1.48×10^4 atoms/ μC
 - Suppression by 2 orders of magnitude when compared to quartz line version 1.0 of last year.

Brief summary of quartz line unit (version 2.0)

- Suppression of In
(Mass: 126, Half life:
1.58s)
 - Yield at 0A: 2.3×10^3
atoms/ μC
 - Yield at 60A: 1.7×10^4
atoms/ μC

