

New metallic stable ion beams for GANIL

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Summary:

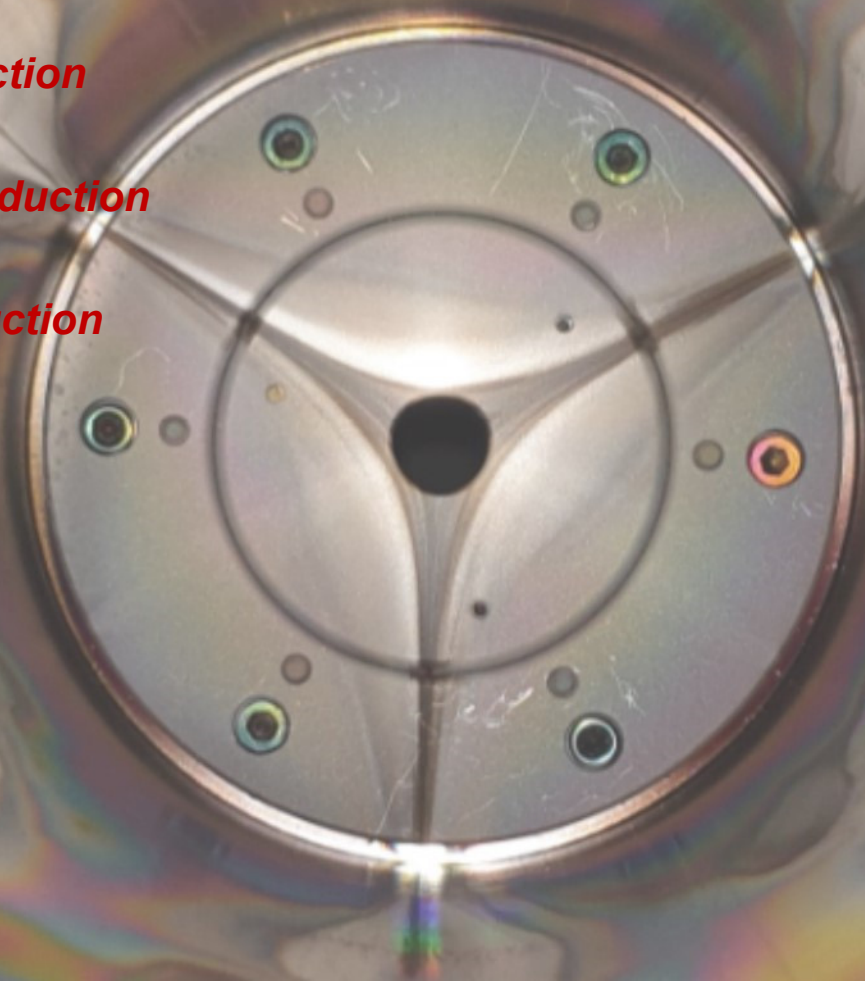
I- Facility and equipments for the tests

II- Silicon beam production

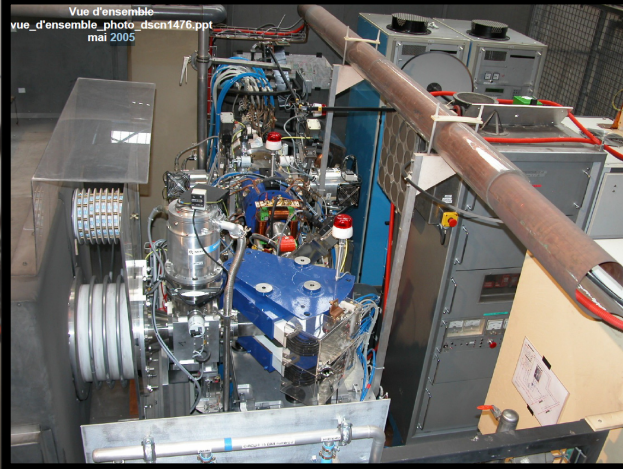
III -Tungsten beam production

IV: Tellure beam production

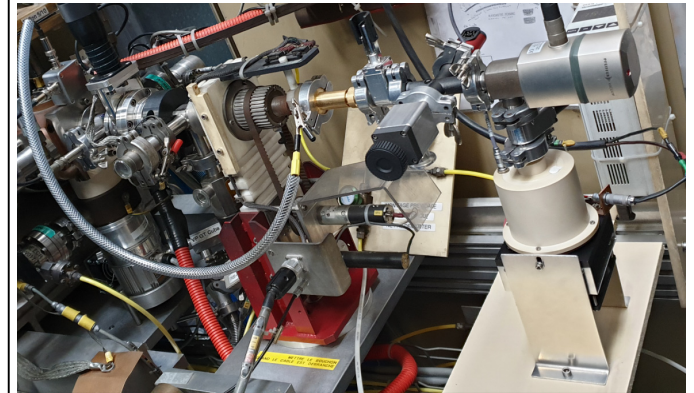
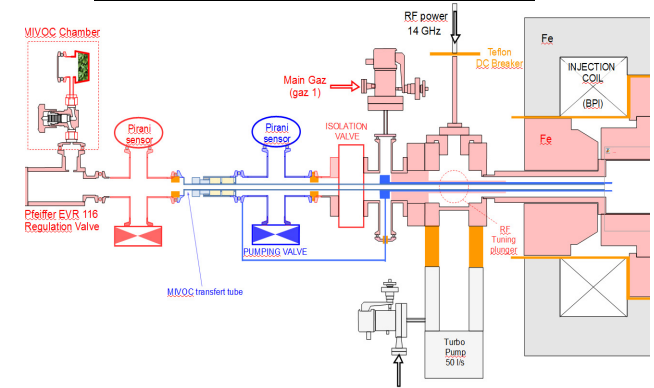
V : Conclusion



I- Facility and equipments

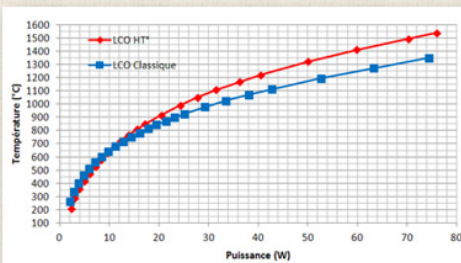


MIVOC method



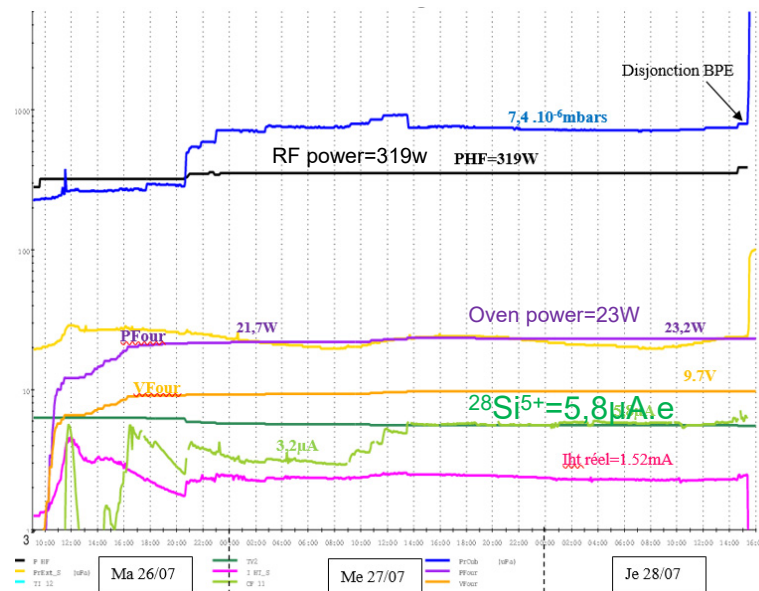
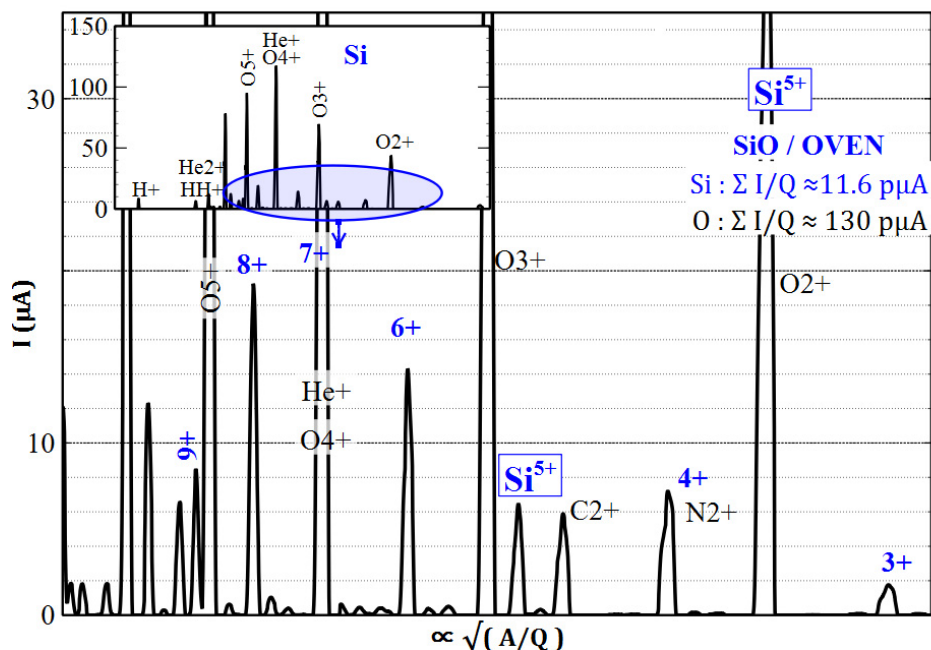
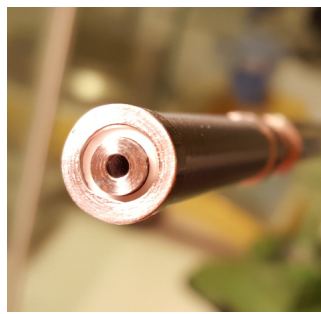
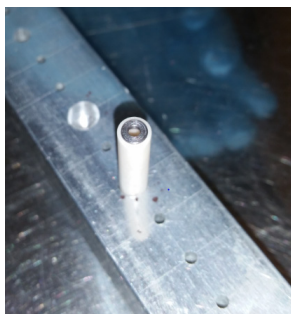
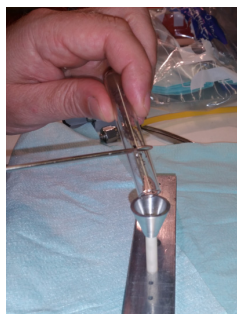
equipment to inject $W(CO)_6$

GANIL oven



The Large Capacity Oven to evaporate SiO , WO_3 and Te

II-Silicon beam production



Compound: SiO natural

Vapor pressure : 10-2 mbar for 1080°C

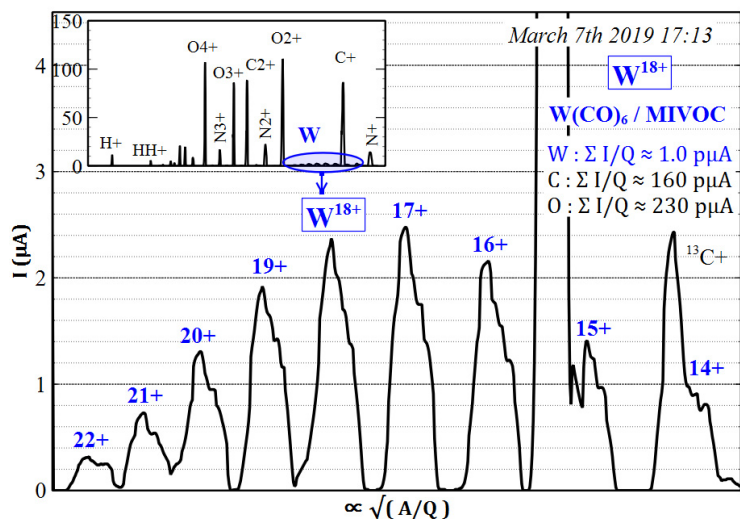
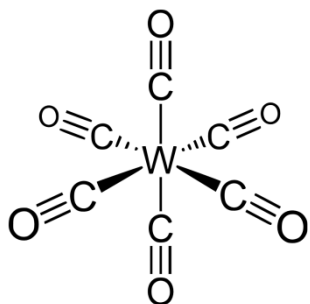
Interest of using: Several isotopically enriched samples with this compound (^{30}SiO , ^{29}SiO)

Consumption: 0,59mg/h of Si (0,89mg/h of SiO)

Efficiency: 6%

III-Tungsten beam production

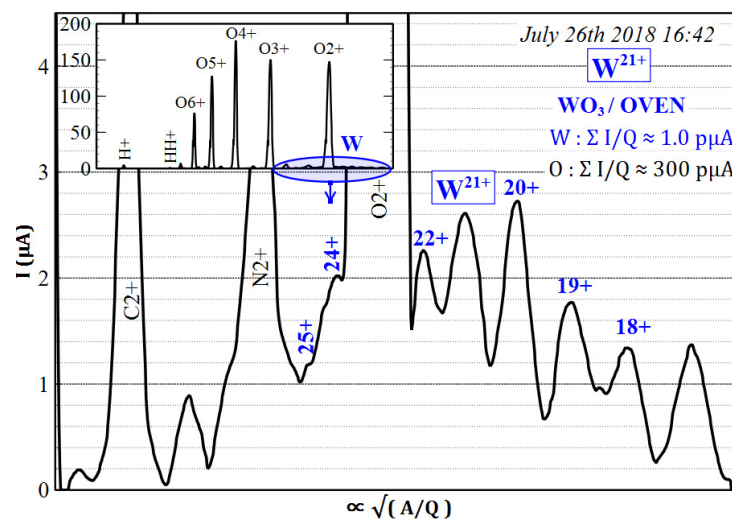
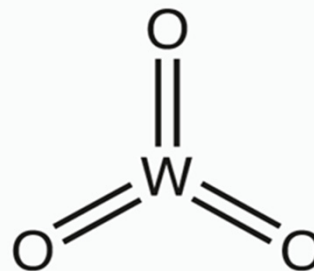
Compound: tungsten hexacarbonyl
 $W(CO)_6$



Consumption: 0,49mg/h of W (0,97mg/h of $W(CO)_6$)

Efficiency: 4,9%

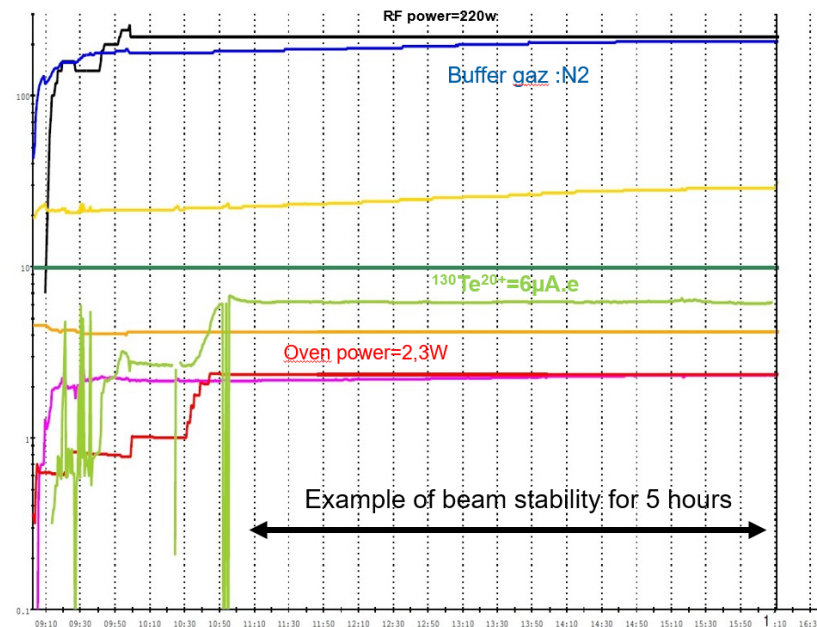
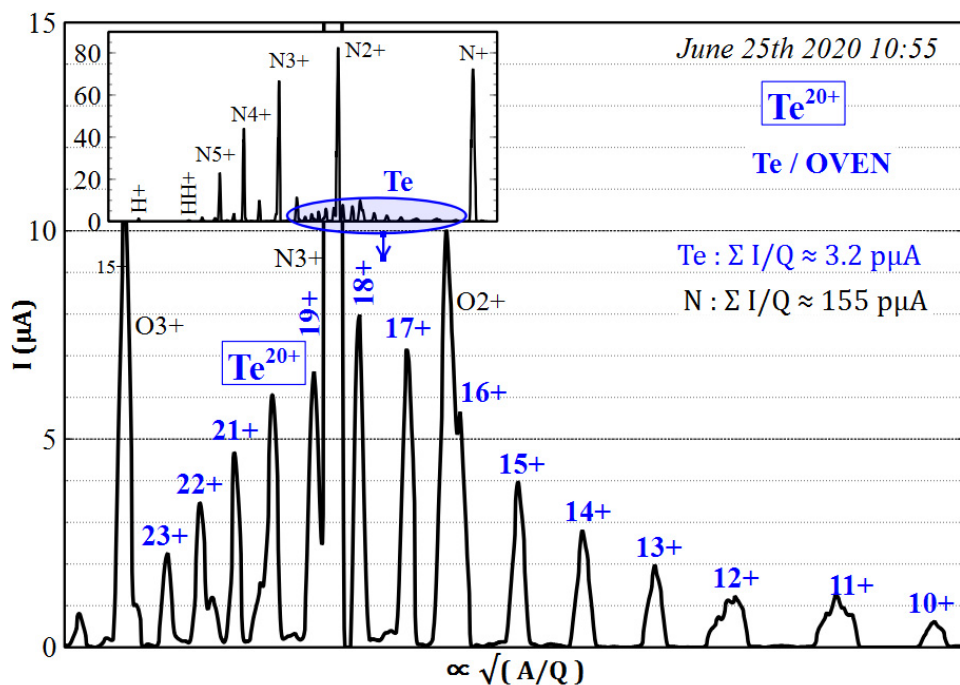
Compound: tungsten trioxide- WO_3 natural
Vapor pressure : 10^{-2} mbar for $1176^\circ C$



Consumption: 3,5 mg/h of W (4,5mg/h of WO_3)

Efficiency: 1,4%

IV-Tellurium beam production



Compound: ^{130}Te (99,8% enriched sample)

Vapor pressure : 10^{-2} mbar for 360°C

Melting point: 452°C

Consumption: 0,52mg/h of ^{130}Te

Efficiency: 7,5%

V-Conclusion

- Three new ions beams availables
- Carbonyl compounds: New way to produce other metallic elements.

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	**	104	105	106	107	108	109	110	111							
*	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
**	Ac	Th	Pa	U													

Oven

Gaz compound, MIVOC

Sputtering

Plasma heating

Metallic ions produced at GANIL -2020

Thank you for you attention!