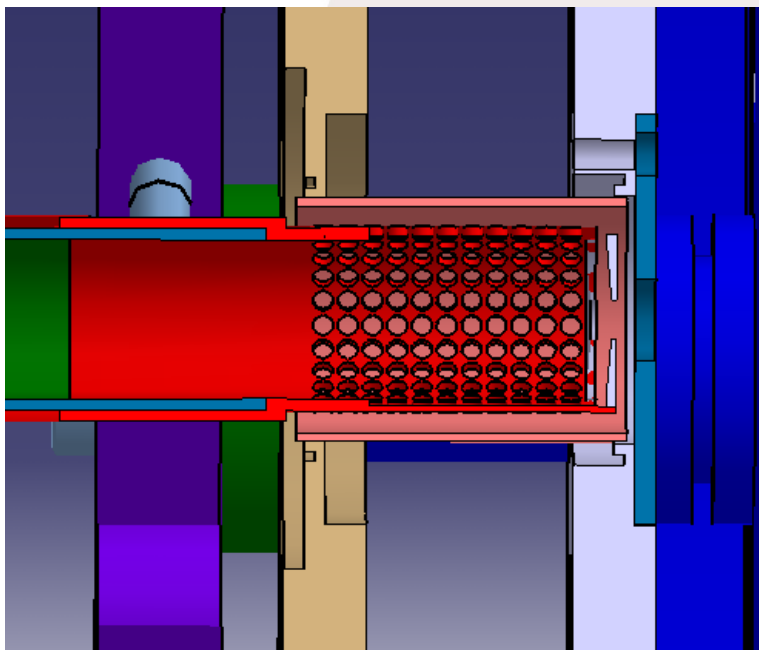
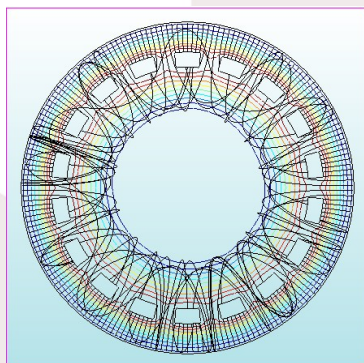


- IRENA plasma ion source for SPIRAL2 project
- RILIS in collaboration with ISOLDE-CERN
- submitted NUPNET proposal: EURIMIS project



IRENA (Ionization by Radial Electron Neat Adaptation) prototype based on EBG (Nitschke, LBL 1985).

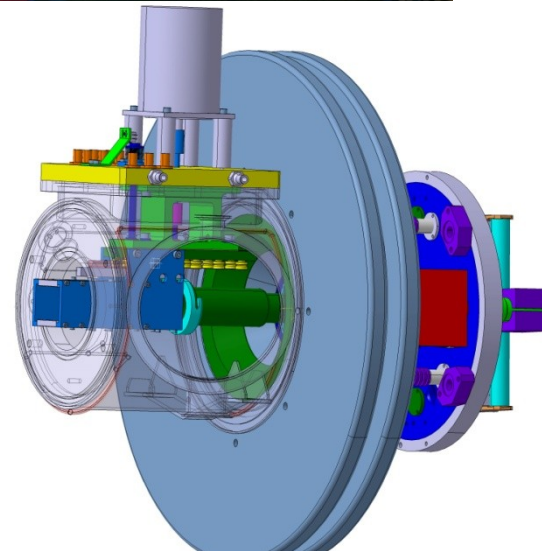


Tests of the IRENA plasma ion source

Ion source prototypes tested at ALTO off-line isotope separator.
Important high voltage issues since the out-gassing of a BeO target.
Cannot operate over 20 kV even after many repairs .



- Design of a new extraction electrode
- translation + electrostatic
 - very limited vacuum chamber
 - fast confinement of the UC_x target.



IRENA: Latest results (tests still in progress)

Vacuum: $8 \cdot 10^{-6}$ mbar , $U_{HT} = 20$ kV

Total extracted current comparable to std FEBIAD

Arc discharge		I_{Ar}
U [V]	I [A]	[nA]
256	0,32	80
403	0,66	253

Leaks suspected in the calibrated gas circuit for Ar

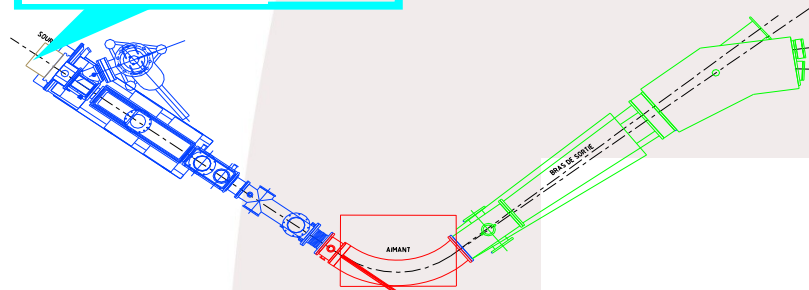
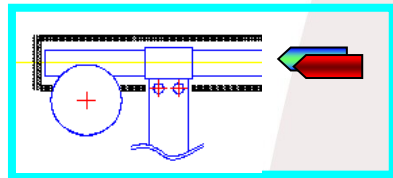
→ Effective ionization efficiency should be better than obtained from current measurements (\geq a few %).

Further planned developments

- ✓ Design of IRENA for tests at ALTO and validation.
- ✓ In parallel design for integration to SPIRAL2 plug (starting phase)
- ✓ Development of rare earth beams using fluorination process (SF_6 or CF_4), in collaboration with Argentina

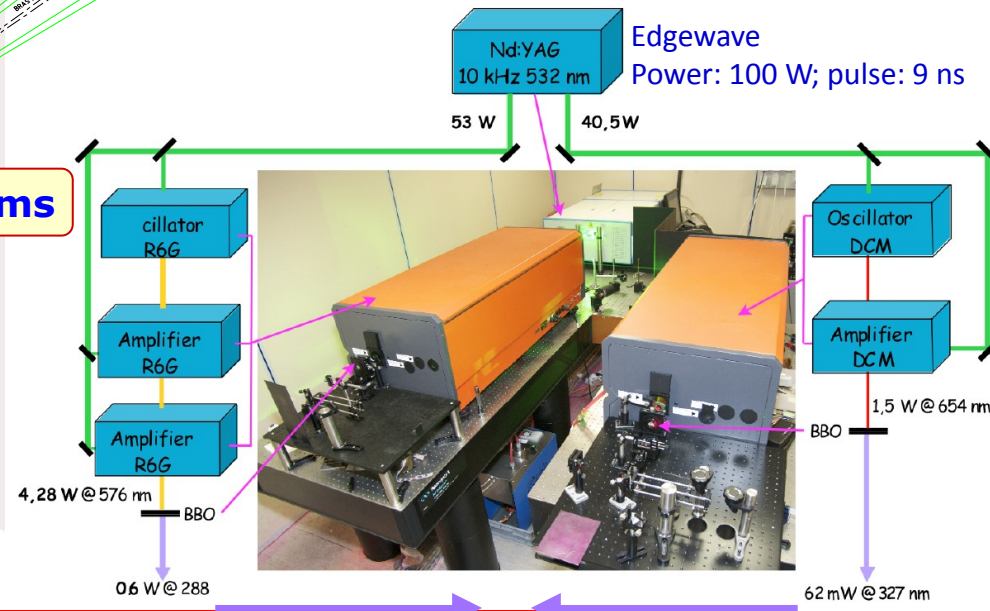
RILIS ion source

Collaboration with ISOLDE-CERN (V.Fedosseev et al.)
to start the exploitation of RILIS at ALTO

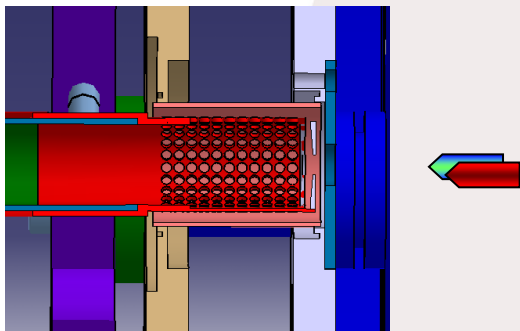


1st Ionization schemes planned:
Ga 287 nm, 532 nm ($\epsilon \leq 21\%$),
Cu 327 nm, 287 nm ($\epsilon \leq 7\%$),
Sn 286, 410 ($\epsilon \leq 9\%$)

Laser beams



EURIMIS (EURISOL Multi-megawatt Ion Sources)



Partners	Requested budget	Responsable Labo
CERN	0 k€	B. Marsh
IFJ (Poland)	25 k€	R. Misiak
IPNO	210 k€	C. Lau
LNL-INFN	60 k€	A. Andrichetto
SLCJ (Poland)	25 k€	J. Choinski

Work Package

Project coordination

WP1: IRENA device for the RILIS

WP2: Beam extraction

WP3: Physicochemical alteration

WP4: Material for selective regulation