LPCTrap setup update

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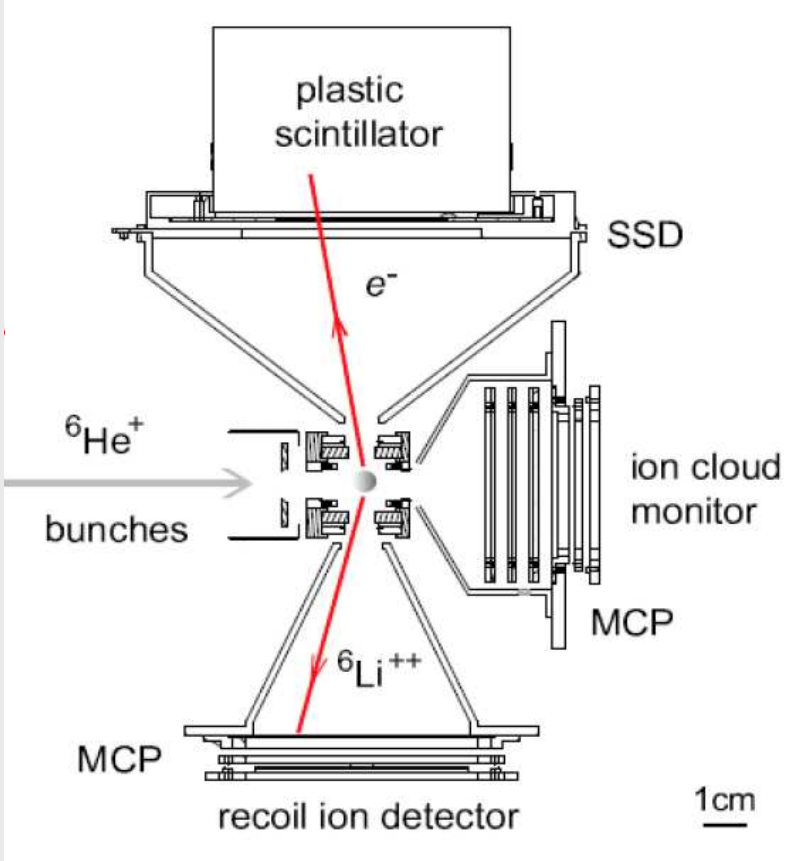
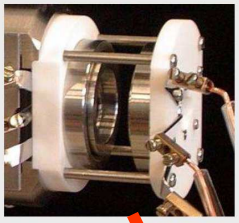
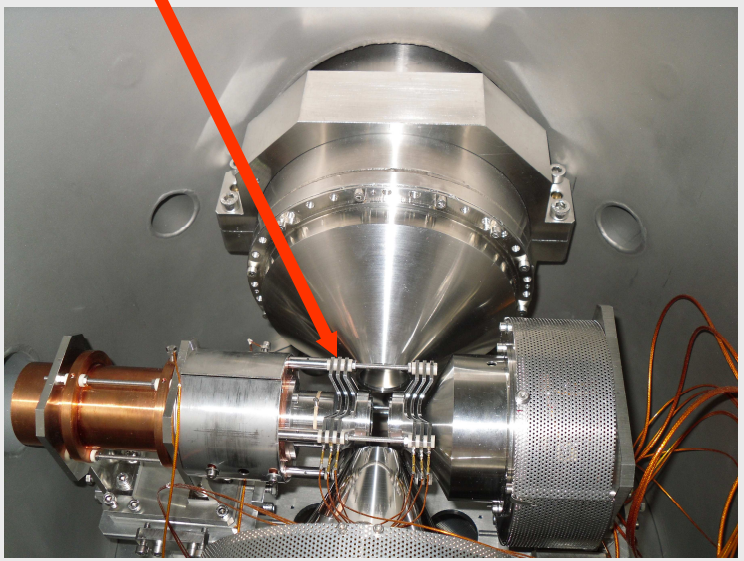
New Transparent Paul Trap

- Decay source of radioactive ions confined in a transparent Paul Trap (electrostatic RF trap works for any singly charged ions)
- β and RI detected in coincidence



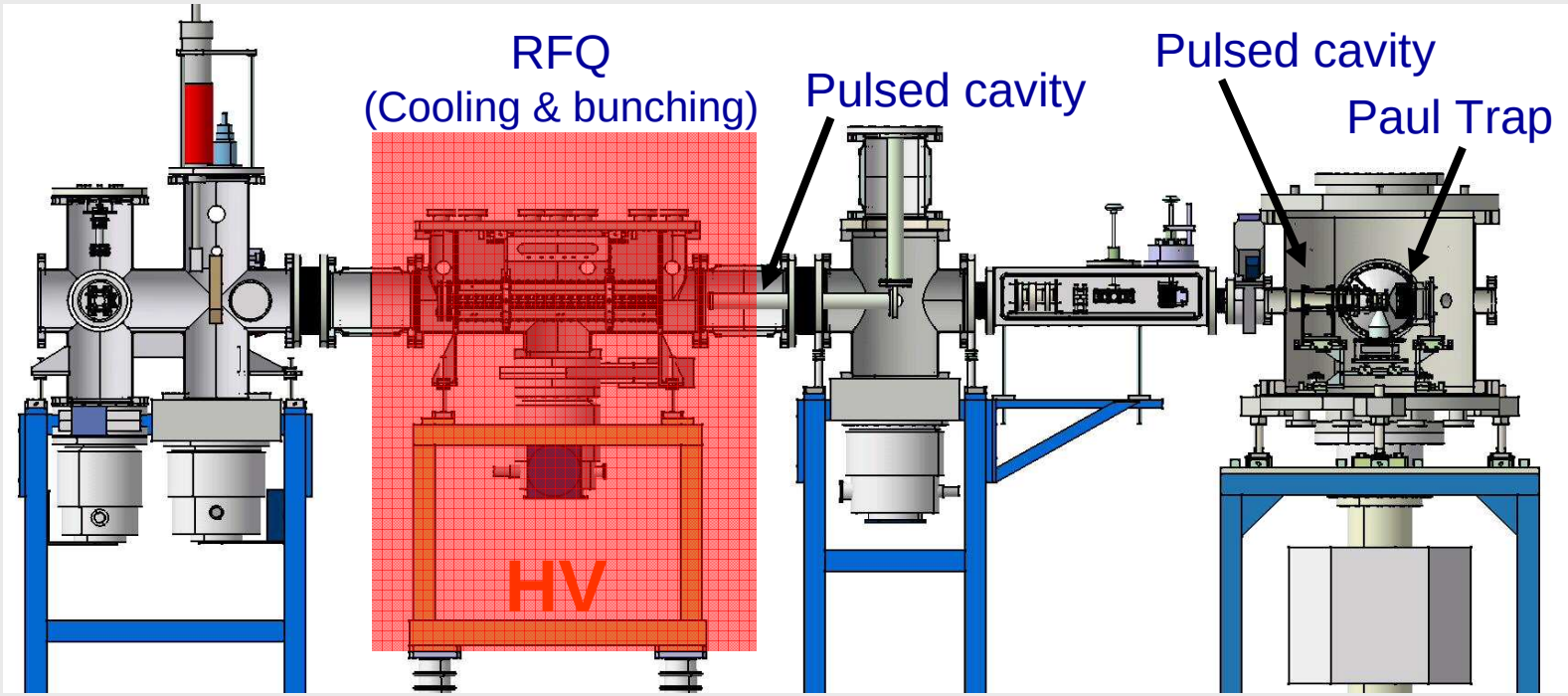


(previous design)



- No ceramic (no charge up)
- Cylindrical symmetry

Beam preparation



KE_{ion}:	10 keV	100 eV - <1 eV	1 keV	100 eV 0 eV
ΔKE:	~20 eV	~1 eV		~0.1 eV
Efficiency:	ε ~ 10-15% @ T_{duty} = 20ms ε ~ 1-1.5% @ T_{duty} = 200ms		ε ~ 40%	ε ~ 20%

New performances

-***RFQ electronics upgrade:***

- *RF adapted to higher masses (for ^{35}Ar, ^{19}Ne beams at SPIRAL)*
- *Improved RF symmetry*

Tests with $^{6}Li^{+}$ and new Paul Trap

$\varepsilon_{RFQ} \sim 10\%$ @ $T_{duty} = 80ms$

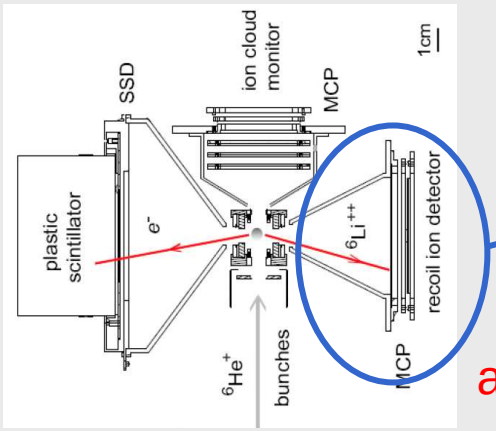
$\varepsilon_{line+trap} \sim 20\%$ for RFQ bunches < 10^6 ions

$\varepsilon_{total} \sim 2\%$

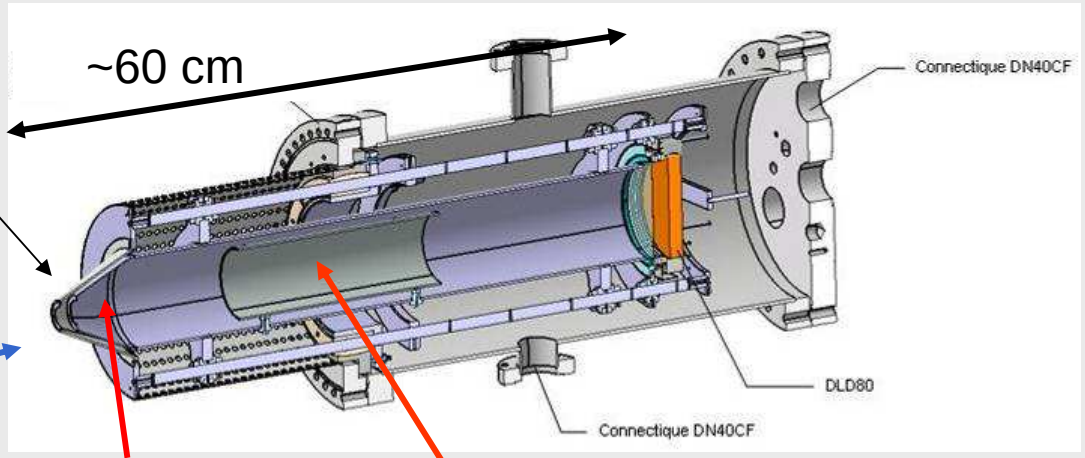
Up to 200 000 trapped ions for 1.5 10^8 pps ($^{6}Li^{+}$)

New recoil ion detection setup

Adding of acceleration electrode & longer field free region



collimator



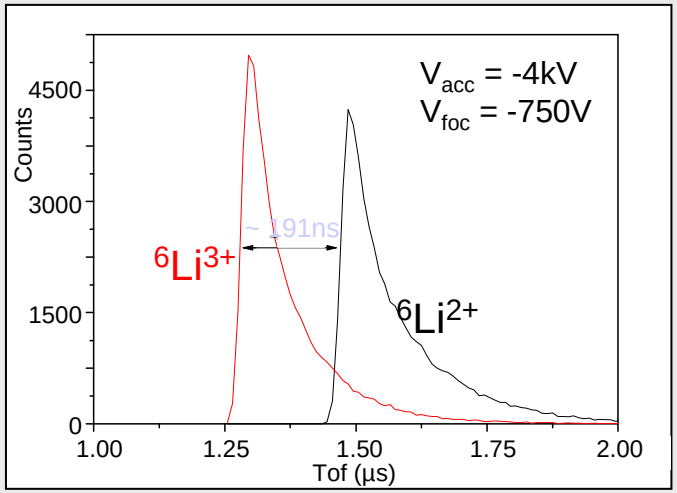
acceleration electrode

focusing electrode

→ Distributions separated by time of flight

→ Shake-off probability measurement

Proposal (5% precision, ^{6}He) accepted @ GANIL (scheduled in November 2010)



Future improvements

- New beta detectors (replace silicon detector for position readout)

  -> speed up the data acquisition
  -> reduce back-scattering issues

- New detection chamber

  -> easier implementation of new detectors (β and γ...)
  -> larger solid angle for particles detection