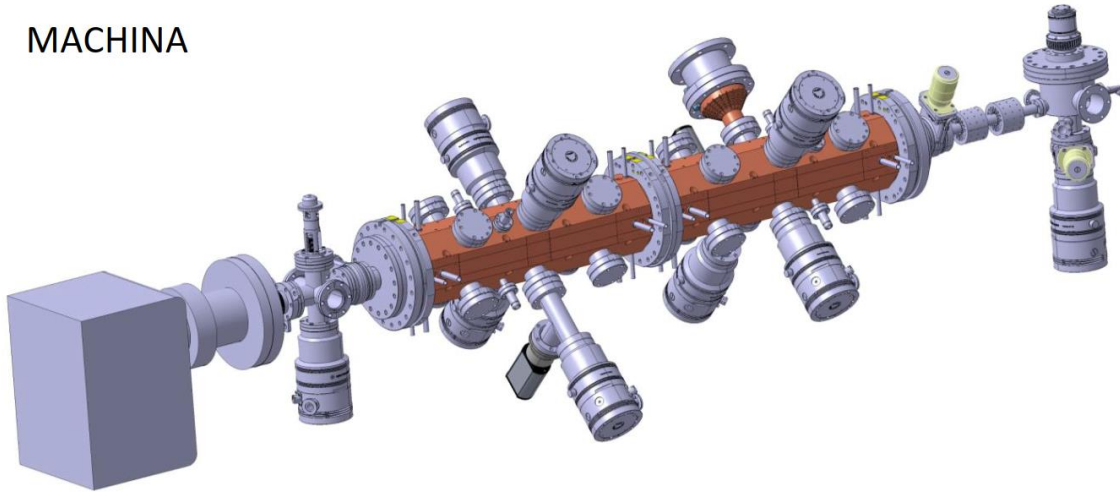


ELISA – Vacuum aspects

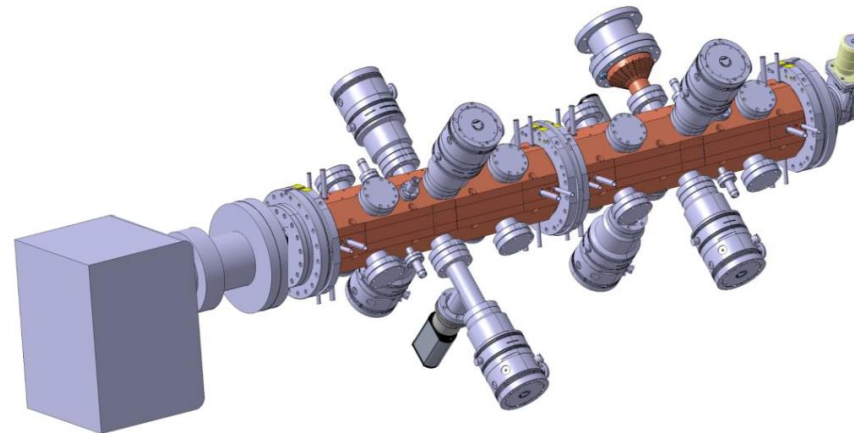
C. Pasquino

MACHINA VS ELISA

MACHINA



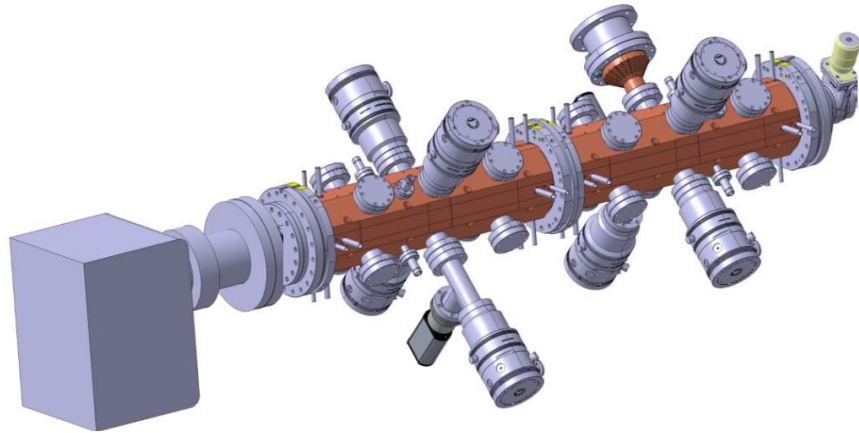
ELISA



- Proton source \rightarrow continuous flow at $3 \cdot 10^{-3}$ mbar l/s of H_2 ;
- RFQ working point $\rightarrow P < 5 \cdot 10^{-7}$ mbar.
- Compact design \rightarrow no turbomolecular pump on the LEBT line, no sector valve between the source and the RFQ (hypothesis of very stable source);
- Possibly, low maintenance, 'public friendly' (no noise, smooth design, nice to look at).

ELISA VACUUM SYSTEM: PRELIMINARY PROPOSAL

ELISA



- Pumping system based on NEG cartridges, combined with ion pumps where needed (RFQ modules);
- Combine different NEG units in between the source and the RFQ to minimise H₂ flow injection in the RFQ;
- Reduce the conductance by reducing the aperture of the inlet flange of the RFQ → closing the RFQ vanes apertures;
- Dedicated mobile pumping groups will be used for service (installation and NEG pumps activation/regeneration); Slow venting and slow pumping of the window vacuum sector;
- Fast acting valve in between the RFQ and the window vacuum sector;
- Pressure monitored with 1 /2 penning + pirani gauge mounted on the RFQ.

NEXT STEPS

- Validate with Molflow/LT Spice the pressure profiles;
- Possibly test one of the NEG cartridges behaviour under high H₂ flow (embrittlement and regeneration cycles);
- Ask for sponsorship!
- Design and purchase a mobile pumping group for ELISA;