

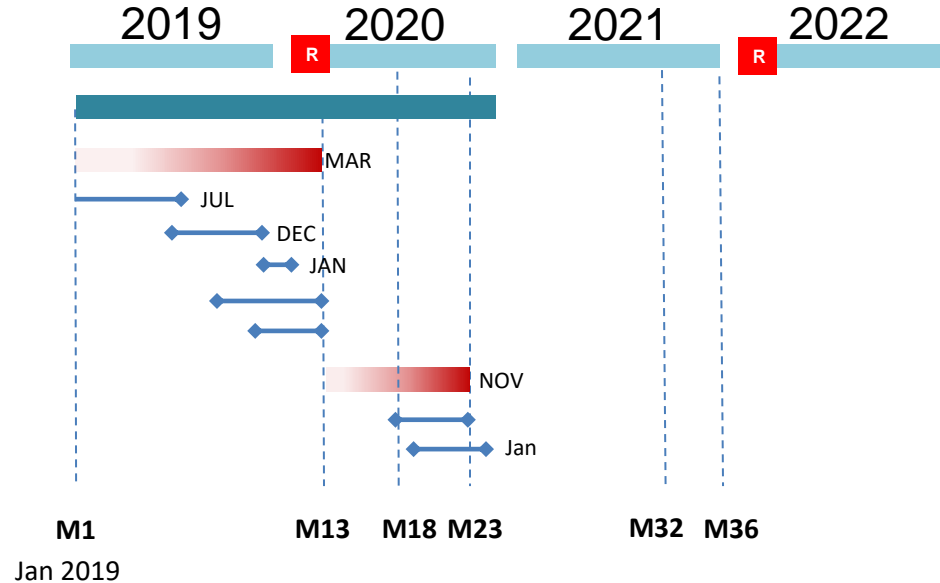
WP3 – Development & Application of HAB

D3.1 – Prototype HAB at KI

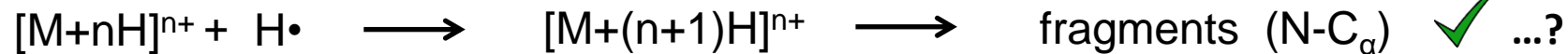
- T3.1 – design of hyperthermal H atom gun
- T3.2 – construction
- T3.3 – interfacing with omni
- T3.4 – software for HAB gun
- T3.5 – testing HAB

D3.2 – Optimized HAB guns at KI/IP

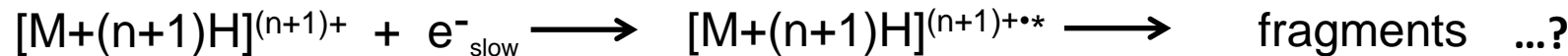
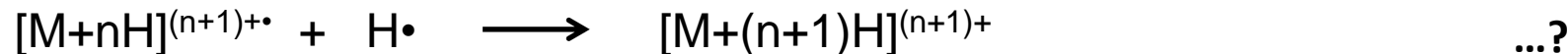
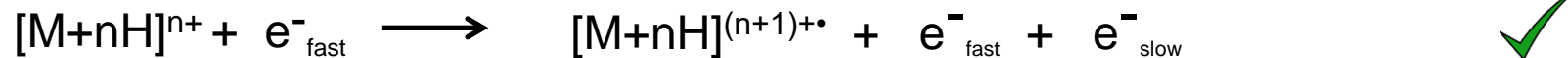
- T3.6 – optimizing software - hardware
- T3.7 – analysis of mAbs



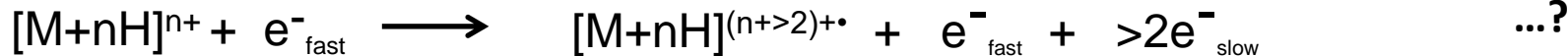
Hydrogen Attachment/Abstraction Dissociation (HAD)



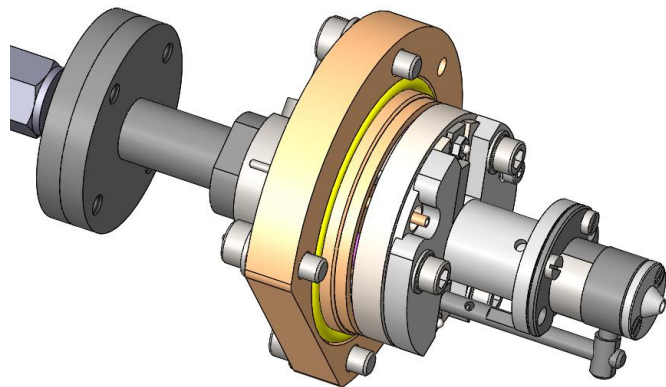
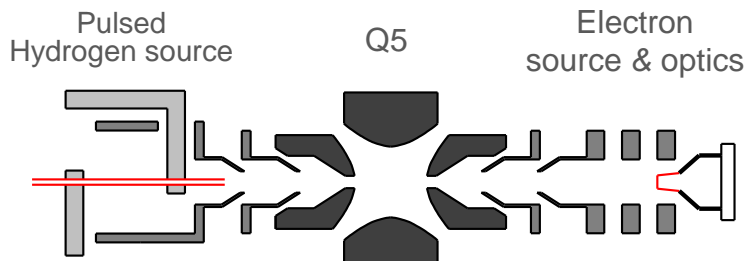
Electron meta-Ionization / Hydrogen Attachment / Electron Capture



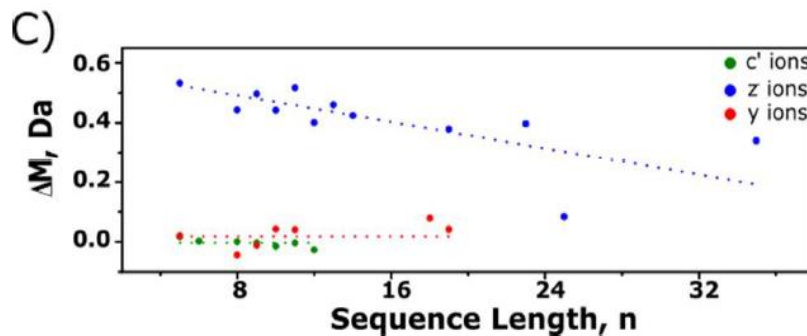
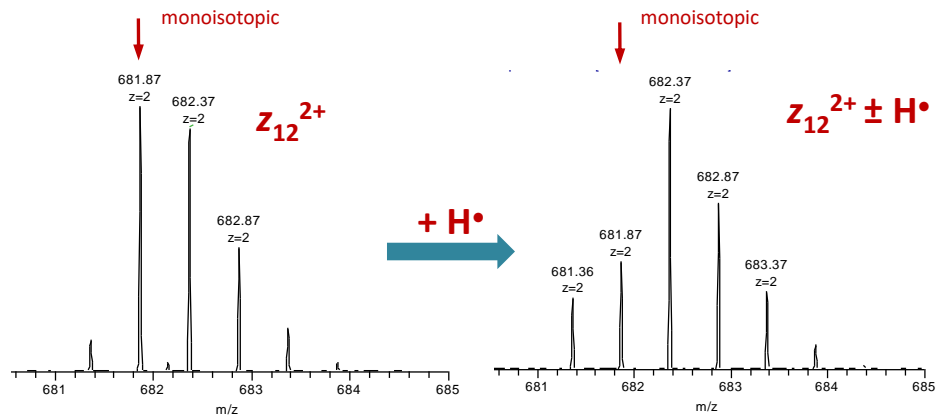
Coulomb Explosion Dissociation (CED)



Hydrogen atom attachment to ECD z radical fragment ions

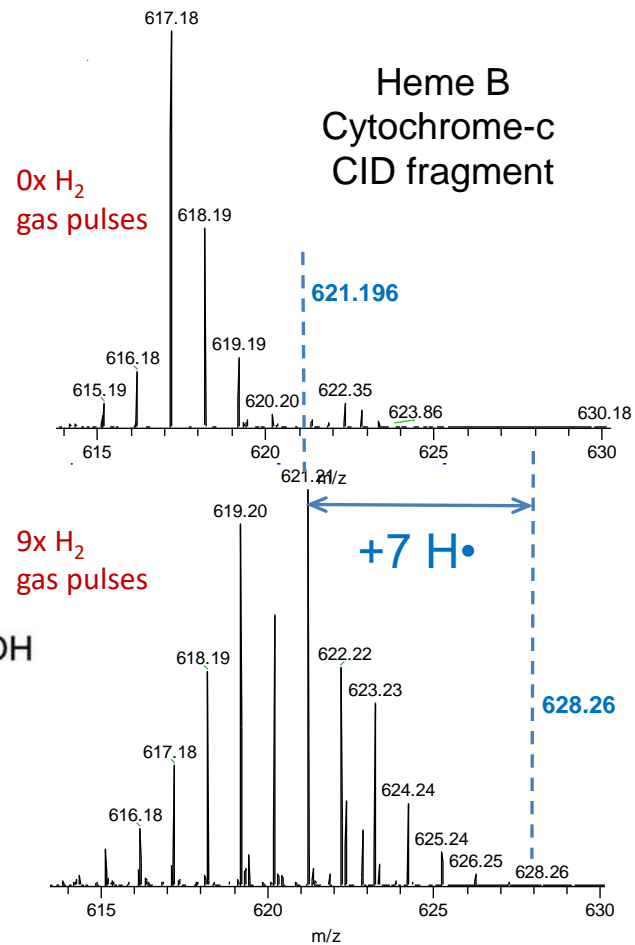
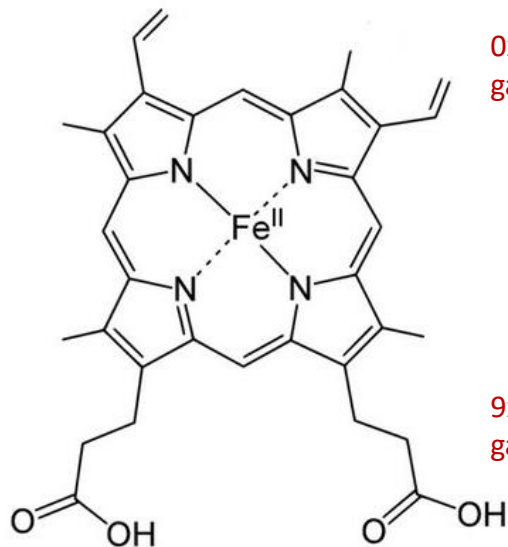
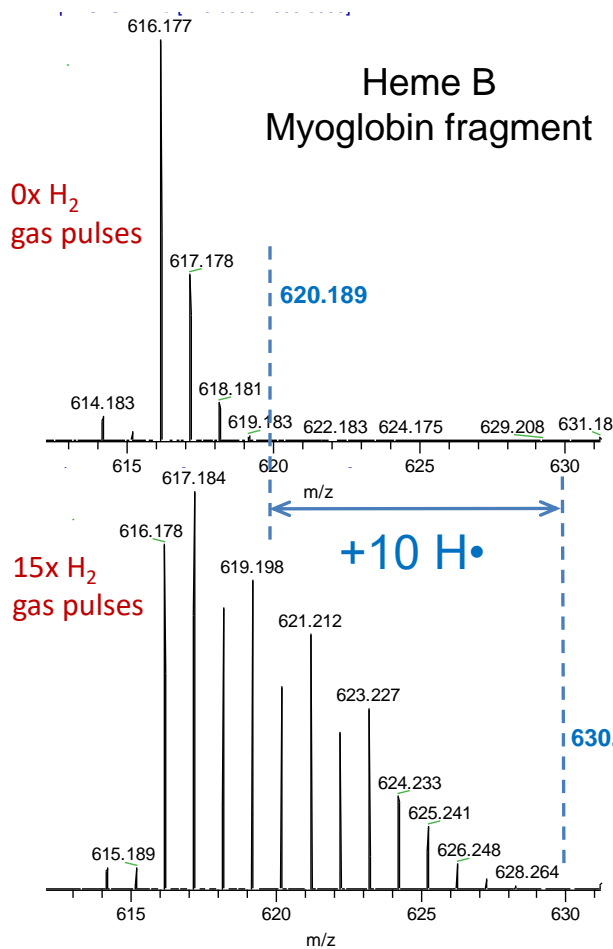


Thermal Ionization Cavity (TIC) Source for cracking molecular hydrogen



WP1 – Development & Application of HAB

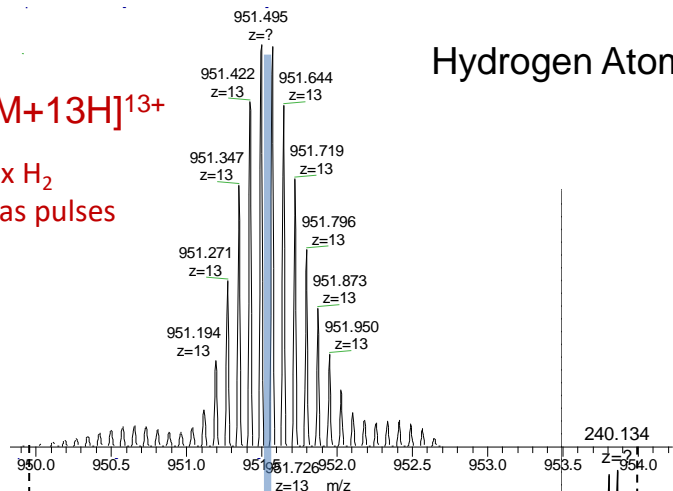
Thermal Hydrogen Atom Source v2



Hydrogen Atom Attachment to Cytochrome-c

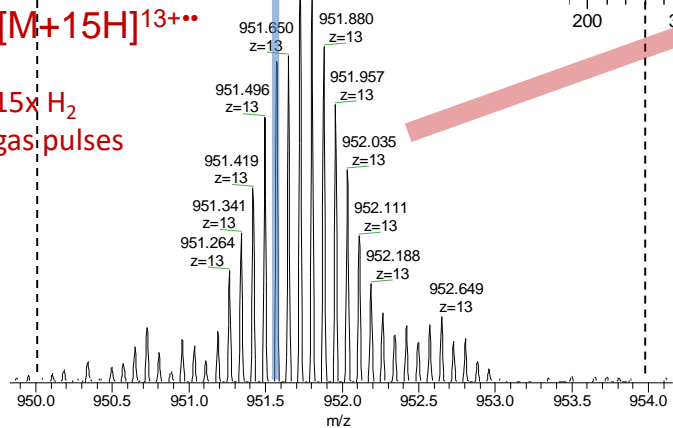
$[M+13H]^{13+}$

0x H₂
gas pulses

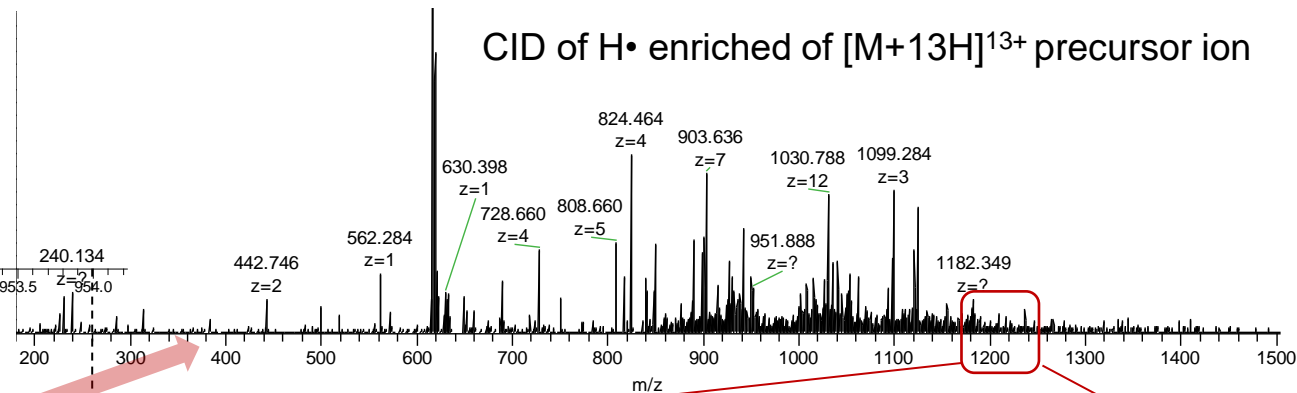


$[M+15H]^{13+...}$

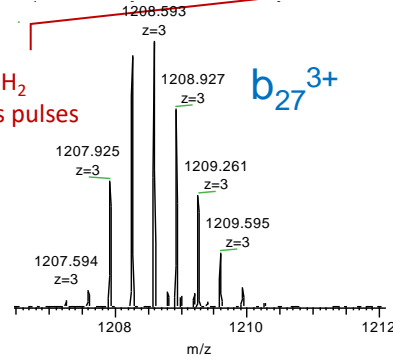
15x H₂
gas pulses



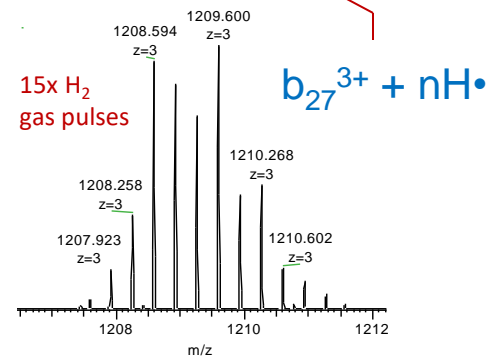
CID of H• enriched of $[M+13H]^{13+}$ precursor ion



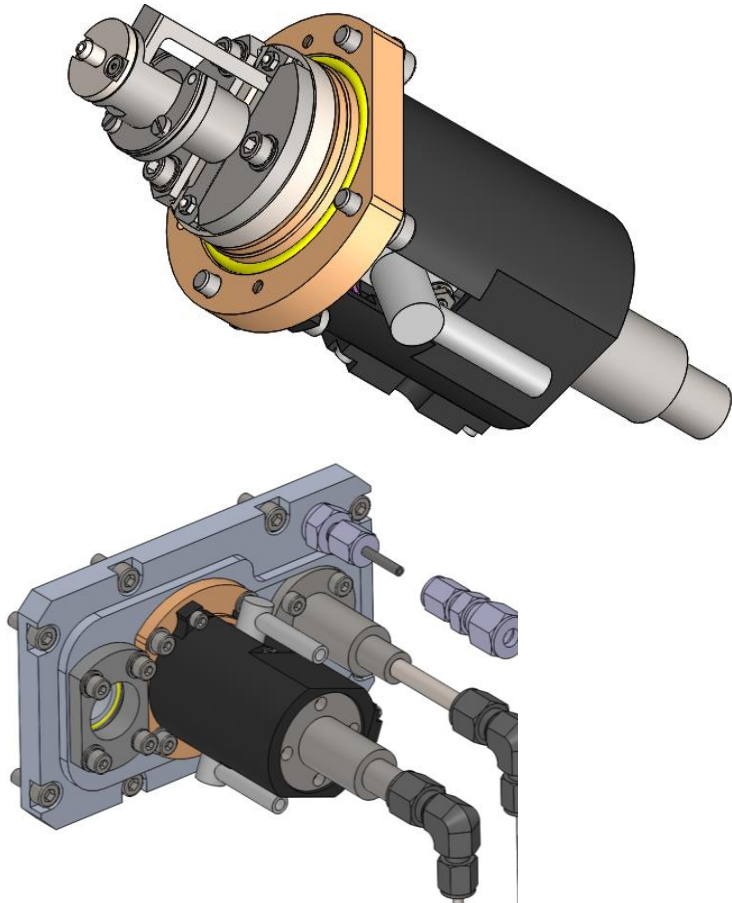
0x H₂
gas pulses



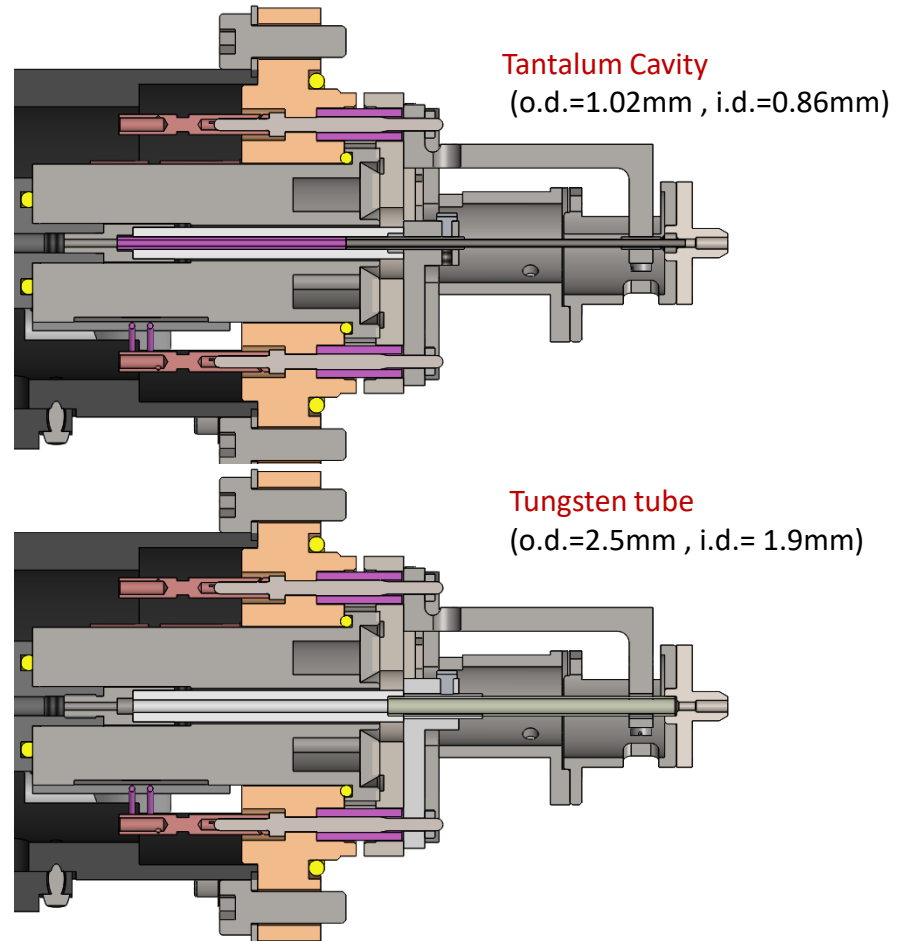
15x H₂
gas pulses

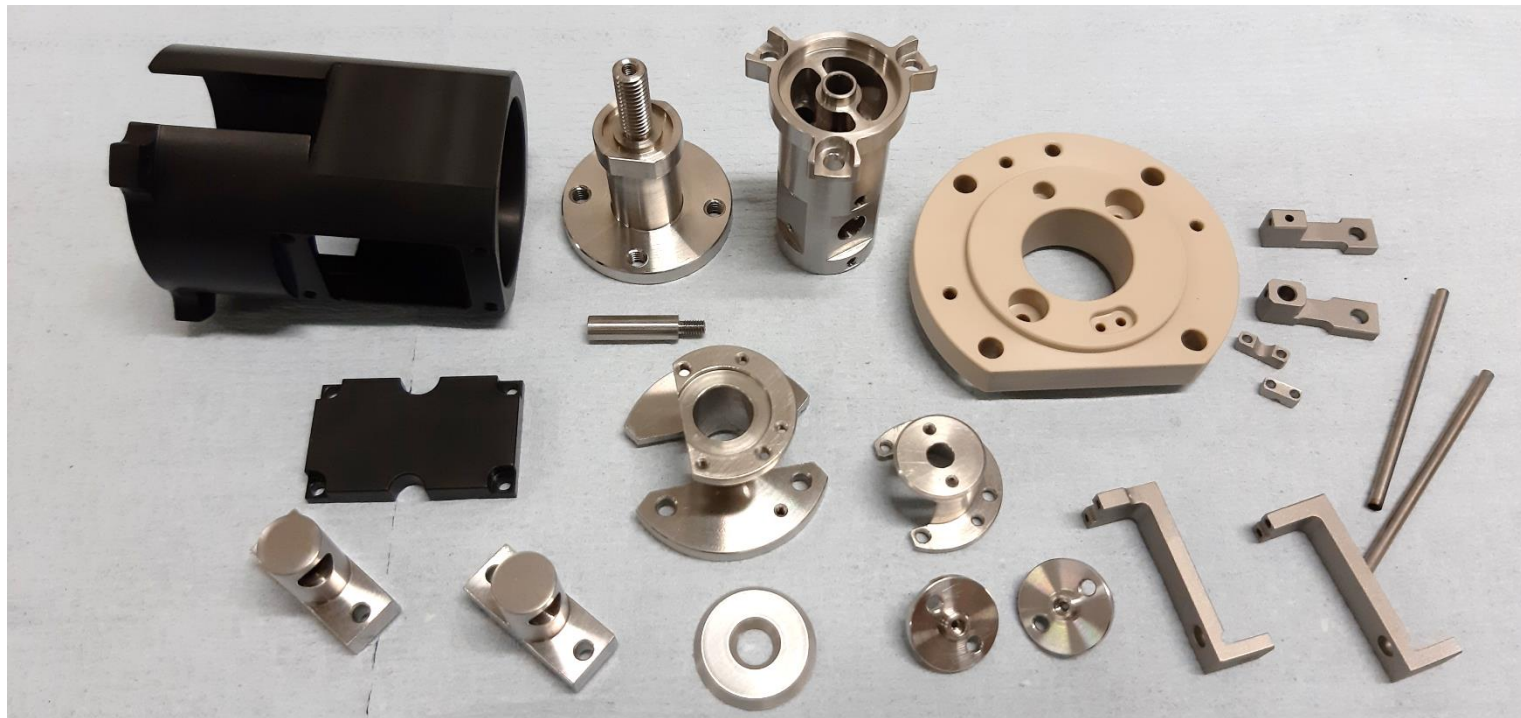


WP1 – Development & Application of HAB

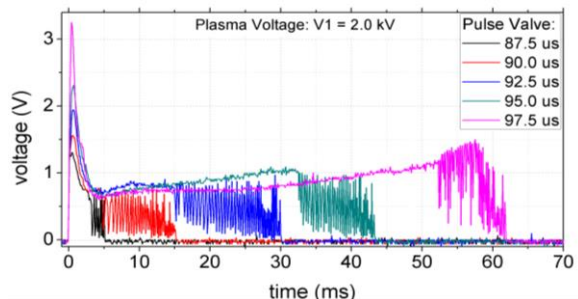
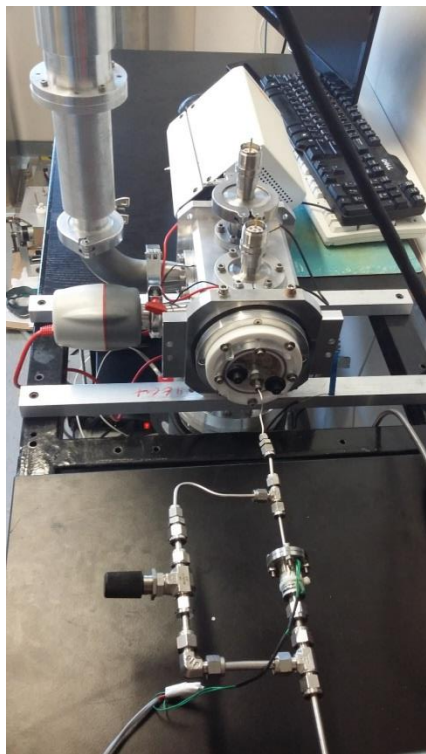


Thermal Hydrogen Atom Source v3





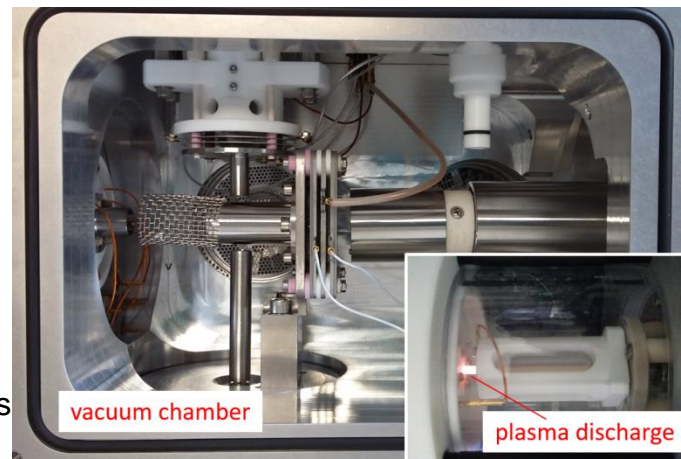
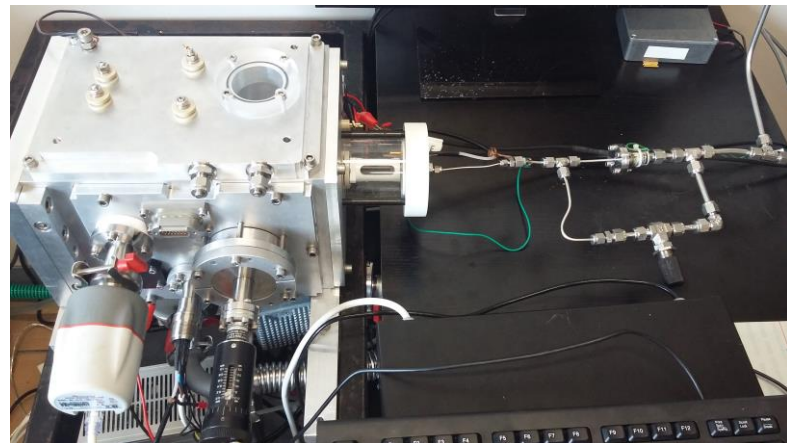
WP1 – Development & Application of HAB



Pulsed and DC Plasma Diagnostics :

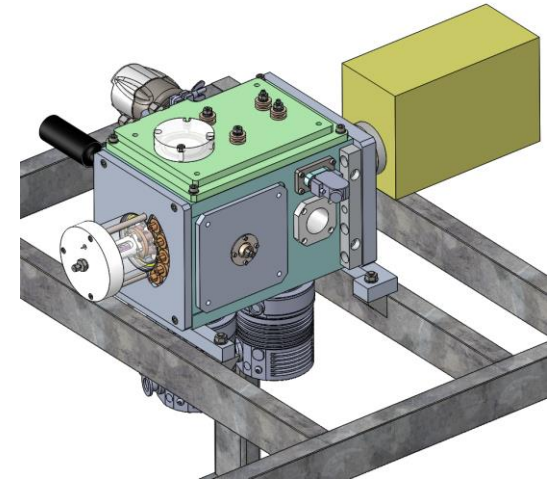
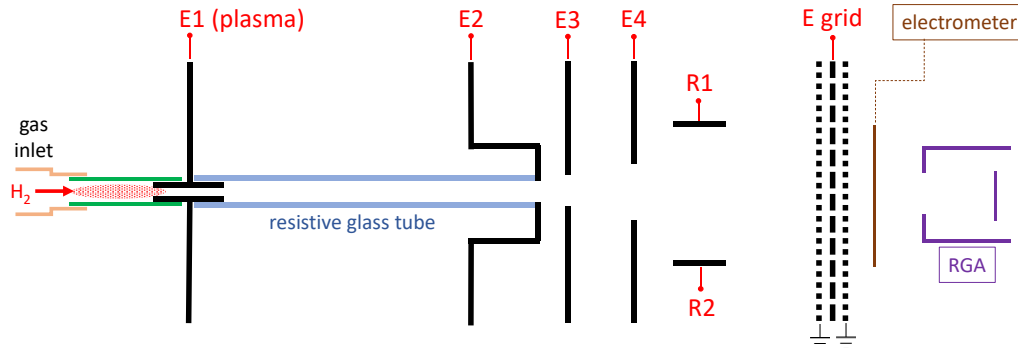
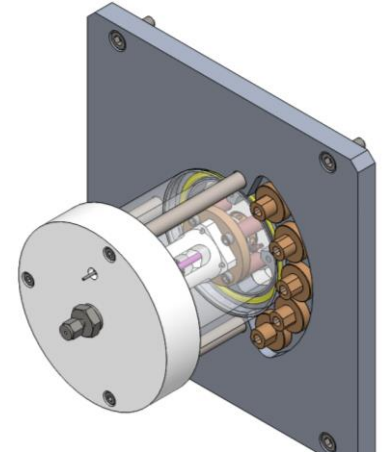
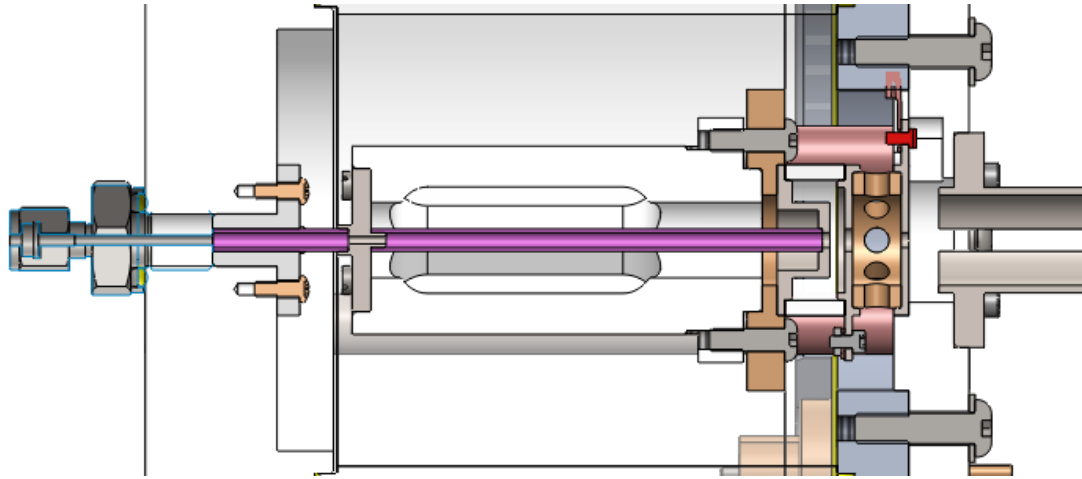
- 1) Quadrupole mass filter (filament on/off to measure plasma ions & neutral)s
- 2) Faraday cap connected to electrometer (stopping curve experiments)

T3.1 – design of hyperthermal H atom gun



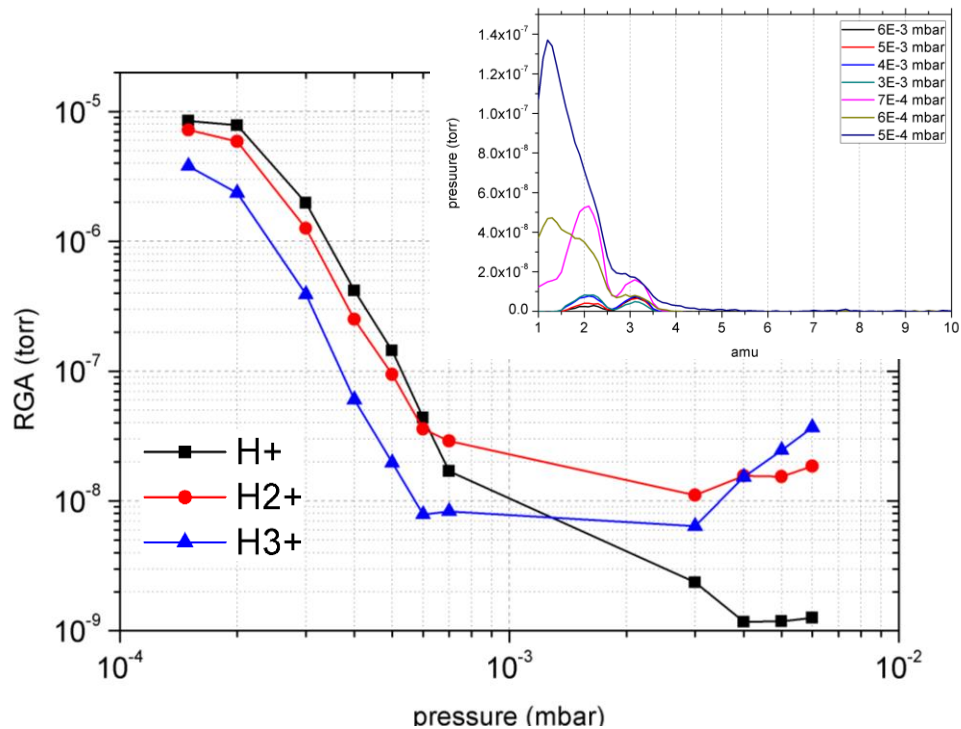
WP1 – Development & Application of HAB

T3.1 – design of hyperthermal H atom gun



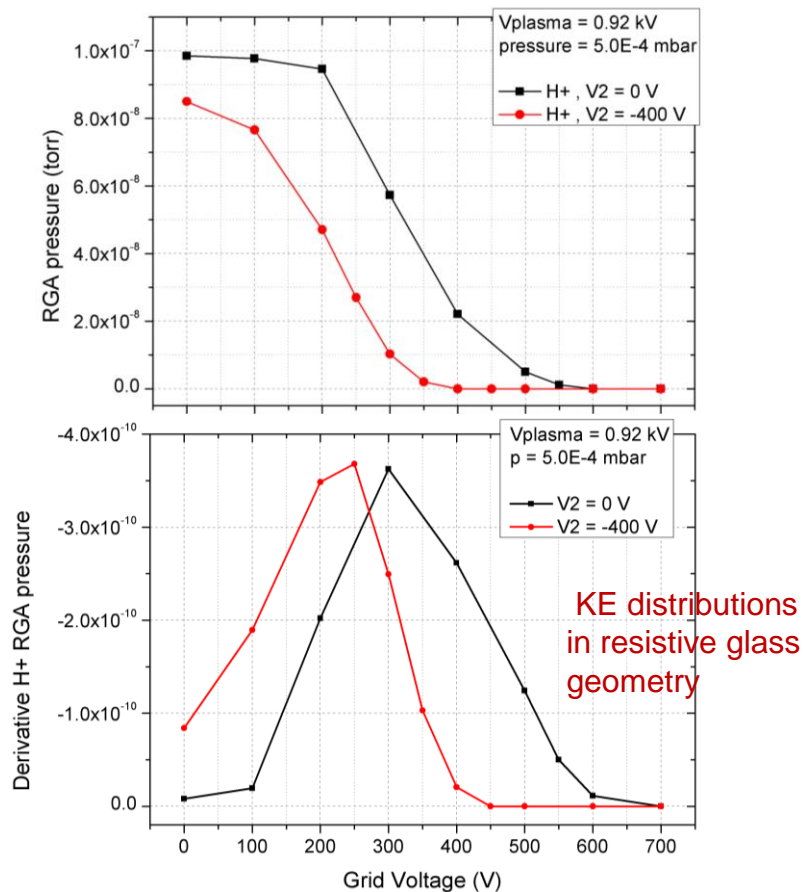
WP1 – Development & Application of HAB

continuous mode of operation



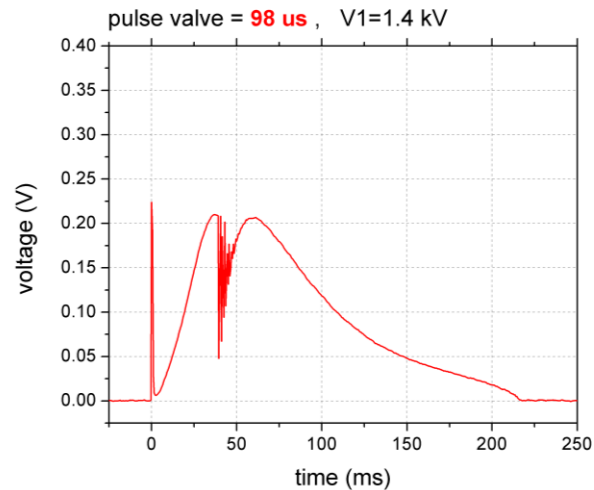
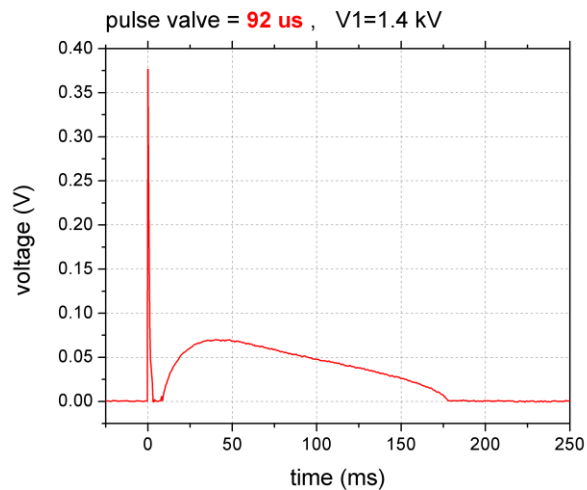
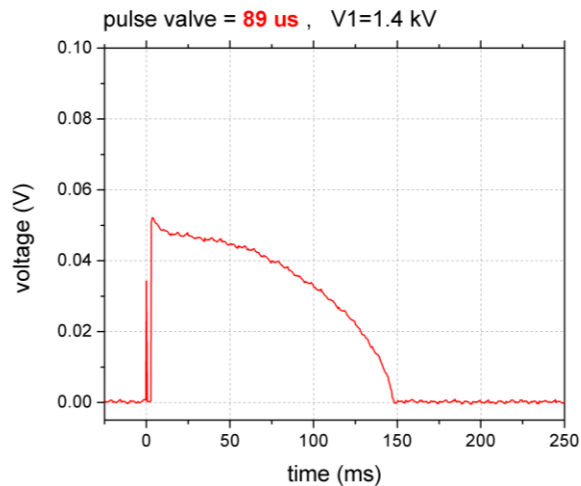
T3.1 – design of hyperthermal H atom gun

stopping curve experiments

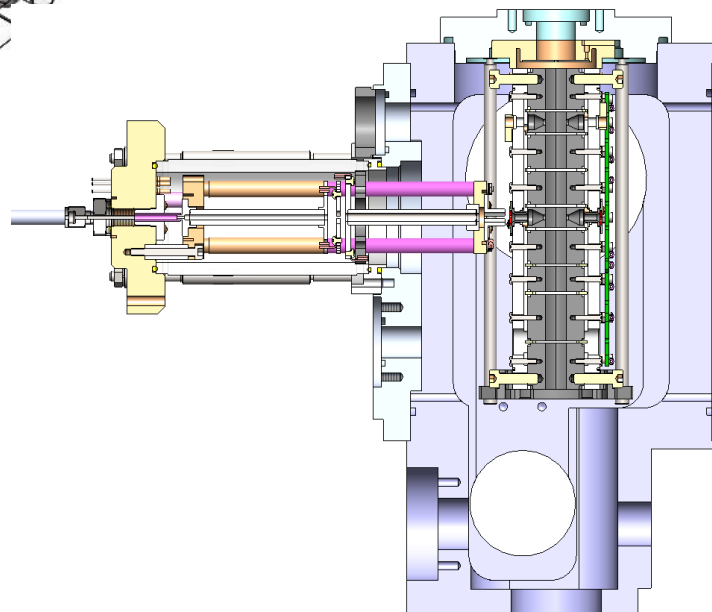
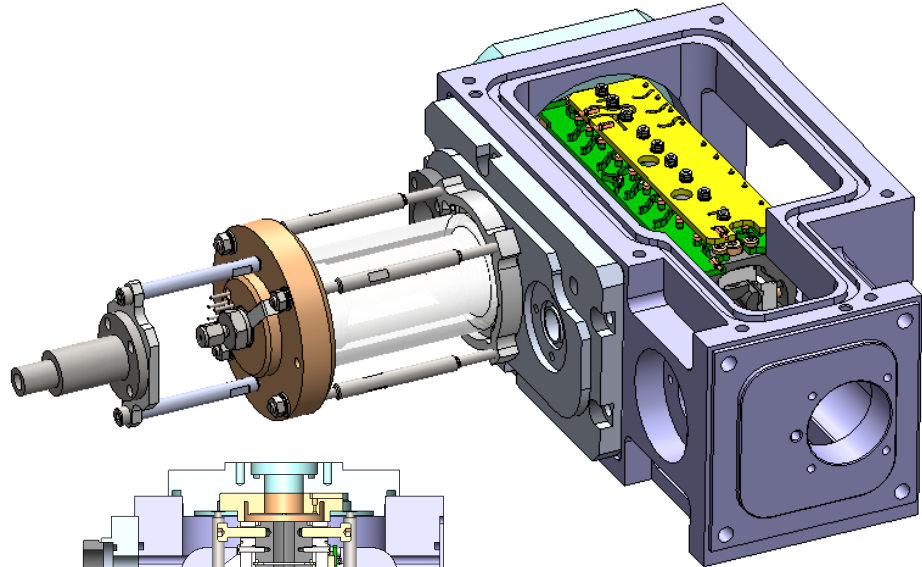
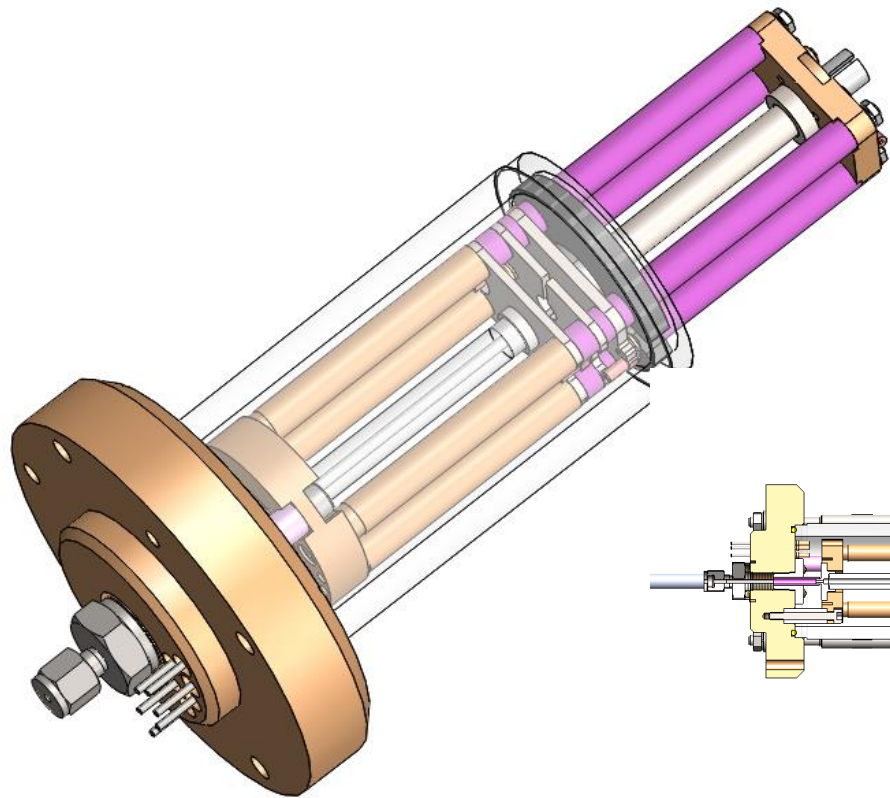




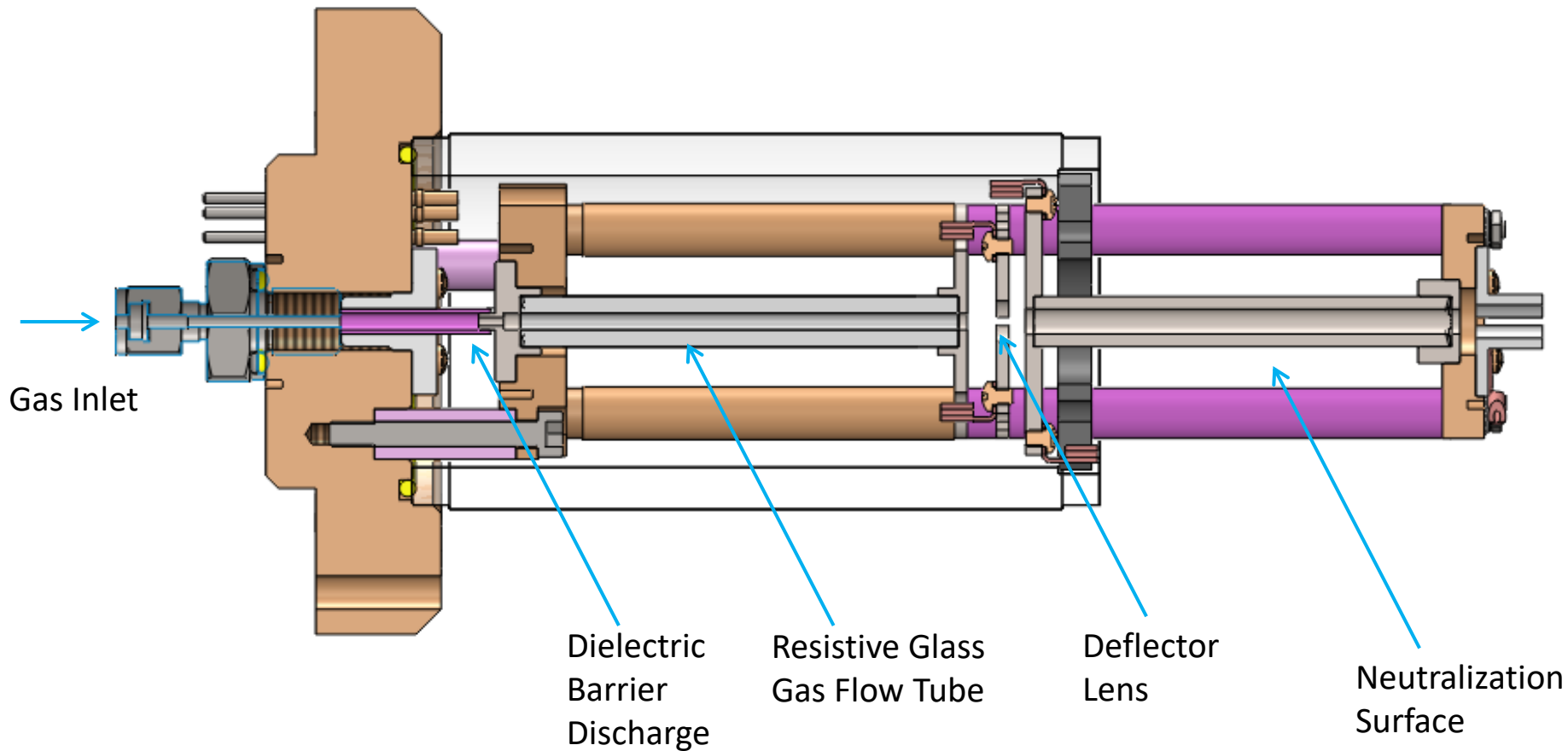
Pulsed Operation of the H atom source



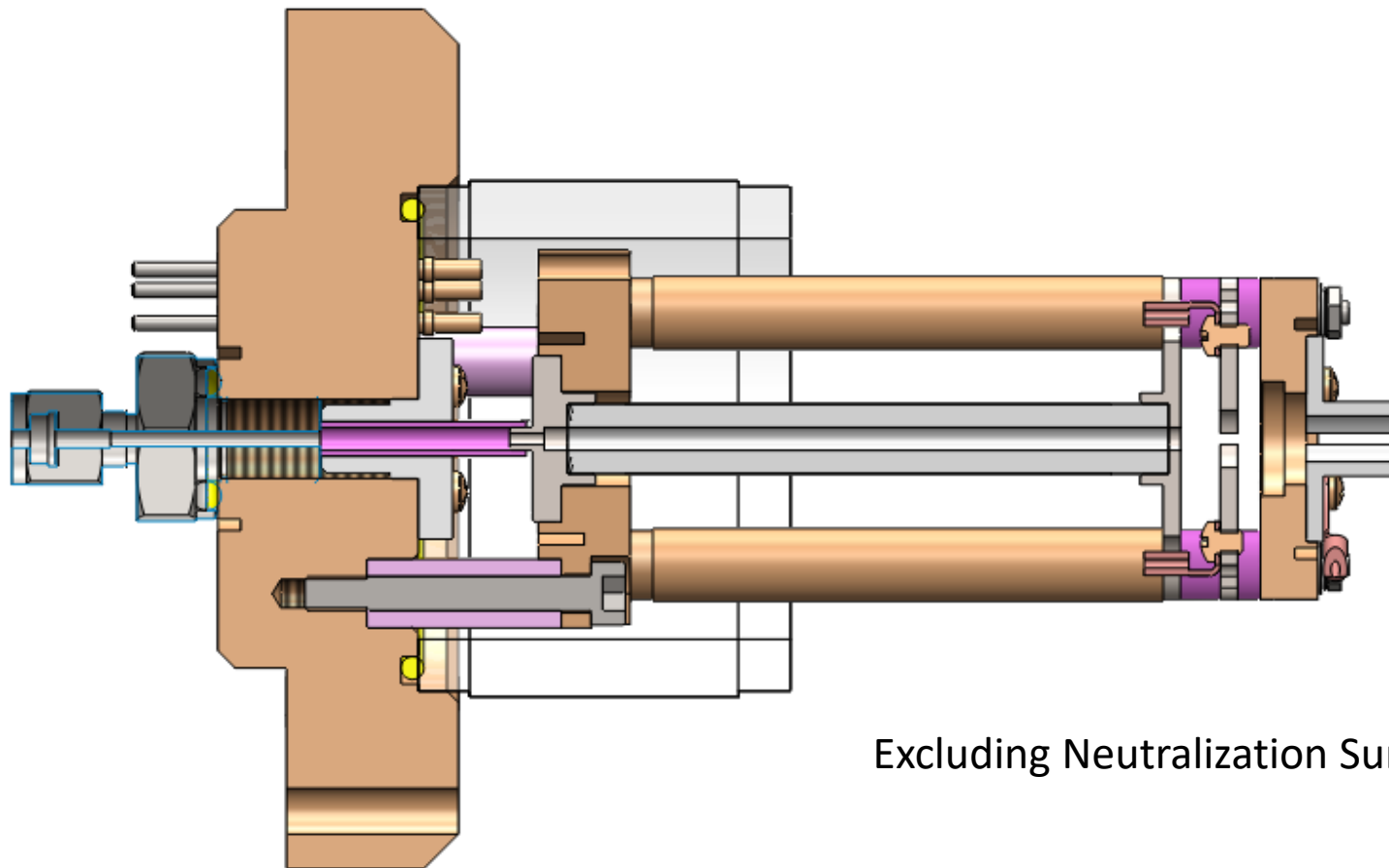
Integrated into the Omnitrap platform



Integrated into the Omnitrap platform



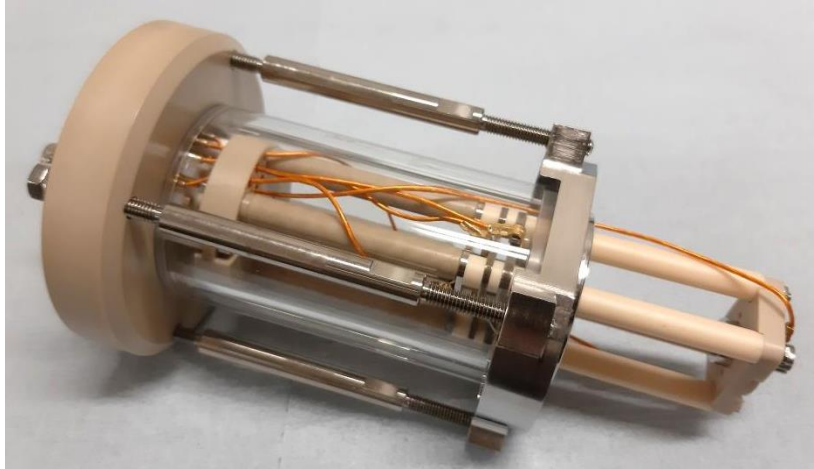
Integrated into the Omnitrap platform



Excluding Neutralization Surface

WP1 – Development & Application of HAB

T3.2 – construction



Pulsed hyperthermal H atom source assembled

Electronics testing & debugging finalized

Experiments are underway...

