

Atom sources and retro chamber

Shaft equipment accessibility workshop

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July 12, 2022

Atom source access

Top: Cooling lasers, imaging, switchyard

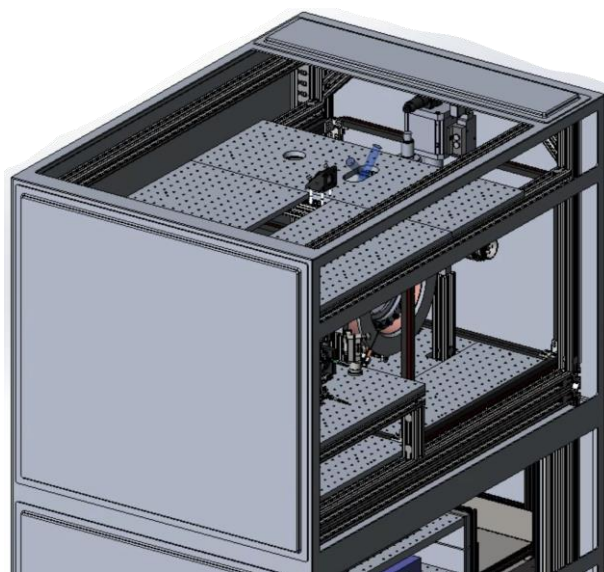
Front, upper: Main cooling chamber, beam source, lattice shuttle, dipole trap, TSP

Front, lower: Power lasers, electronics

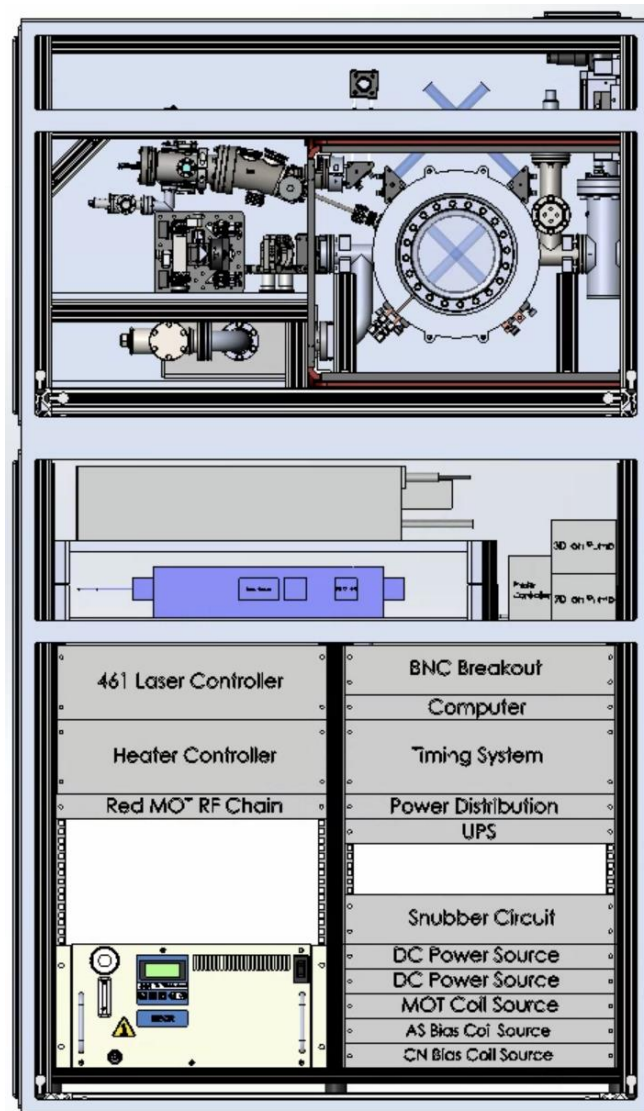
Side, upper: Beam source (?), dipole trap (?)

Side, lower: Cable re-routing (?)

Under: Chiller (?)



Side view

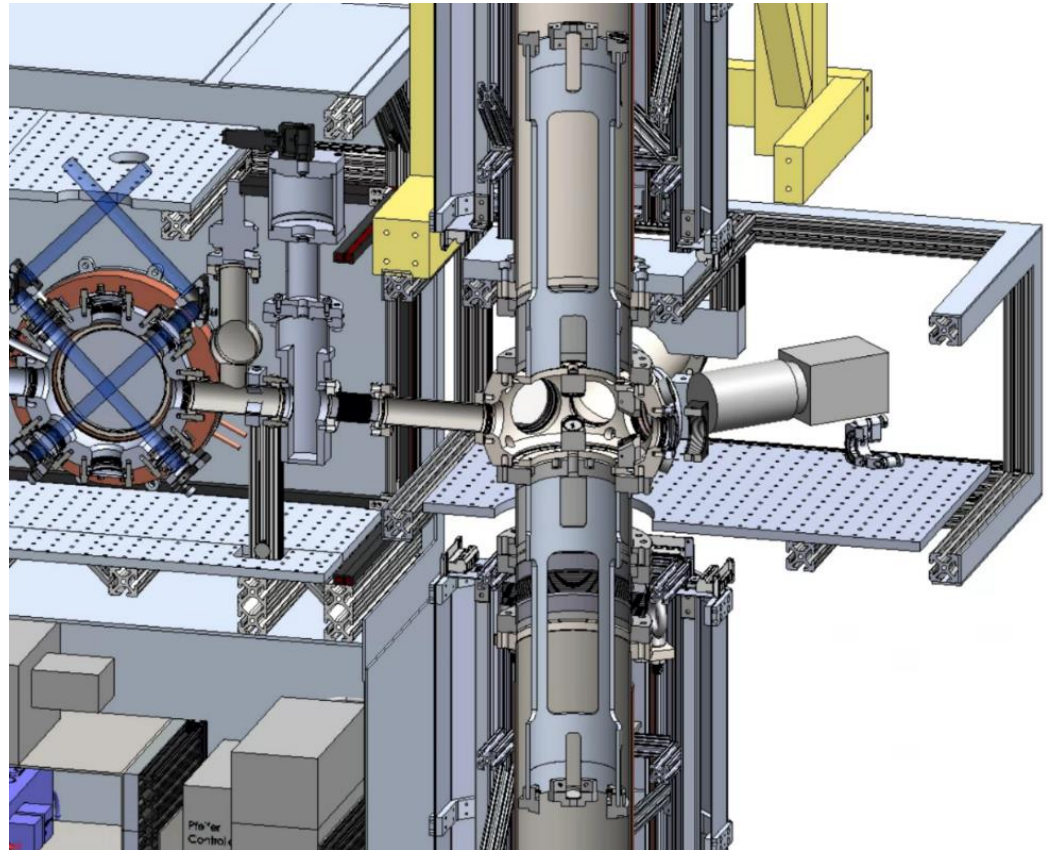


Interior dimensions (width x height x depth) = (44" x 76.75" x 31.5")

Connection node access

Lattice shuttle, launch,
imaging, state prep

Access needed from front
and (likely) top panels.



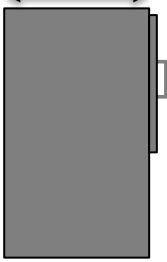
Connection node cross section view

** Ion pump outside

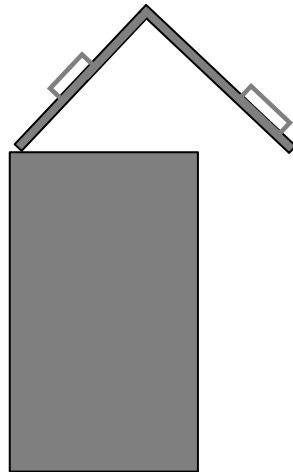
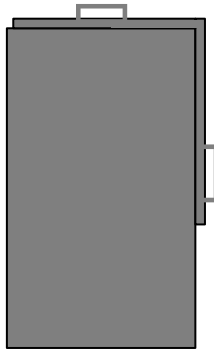
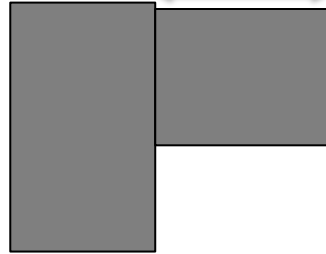
Interior dimensions (width x height x depth) = (31" x 14.6" x 30.5"**)

Some door options

depth ~32 in



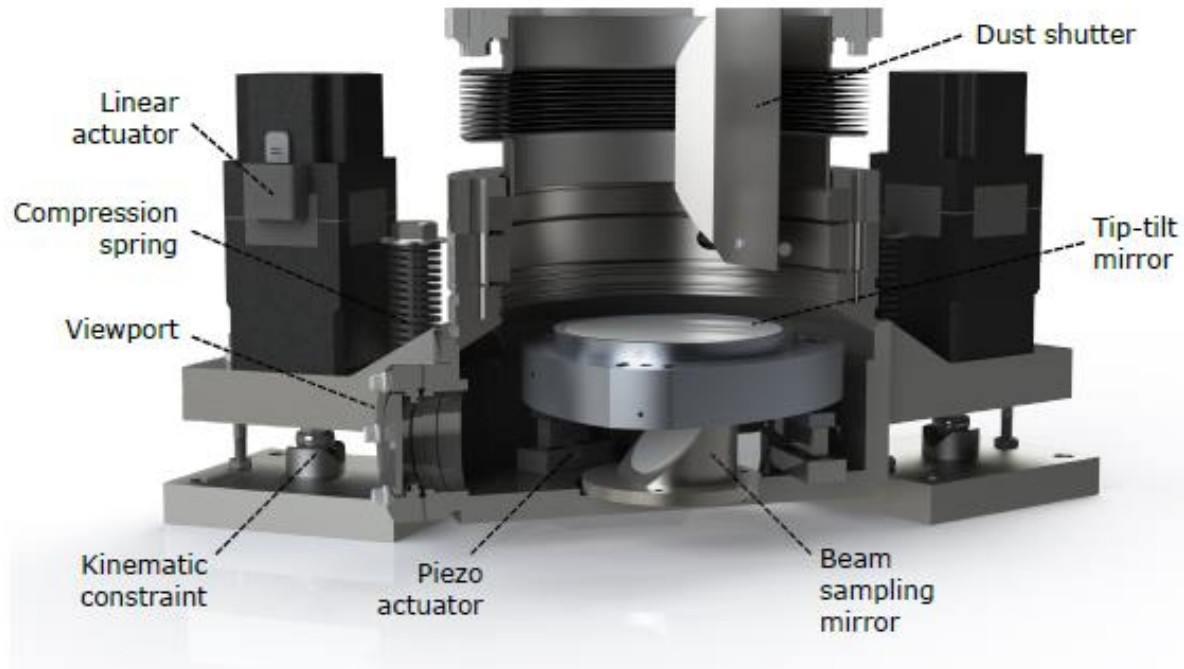
width ~44 in



Atom source access needs summary

- Vertical range: Top panel, front (upper and lower), under (chiller?)
- Transverse range: flexibility to reach connection node (right), atom source (middle), back panel atom source (right)
- Depth: As close as possible to atom source to maximize reach, allowing for door/panel clearance. Enclosure depth is 31.5"
- Regular trips (weekly/daily) during commissioning, typically 30 minutes
- Some form of anchoring to handle reaction forces
- (Reasonably) stable to adjust optics
- Laser curtain option, so lasers can be on during alignment mode
- Room for test and measurement equipment (oscilloscope, spectrum analyzer, ...)
- Flexibility, for things we haven't thought of...

Retro chamber access



- Interferometer beam alignment
- Optical level laser alignment
- Linear actuators and PZT drive electronics, PID
- Dust shutter
- Coarse actuator lock screws (?)

Front panel access +
electronics rack?

Some electronics inside
retro chamber box, some
under mounting platform?