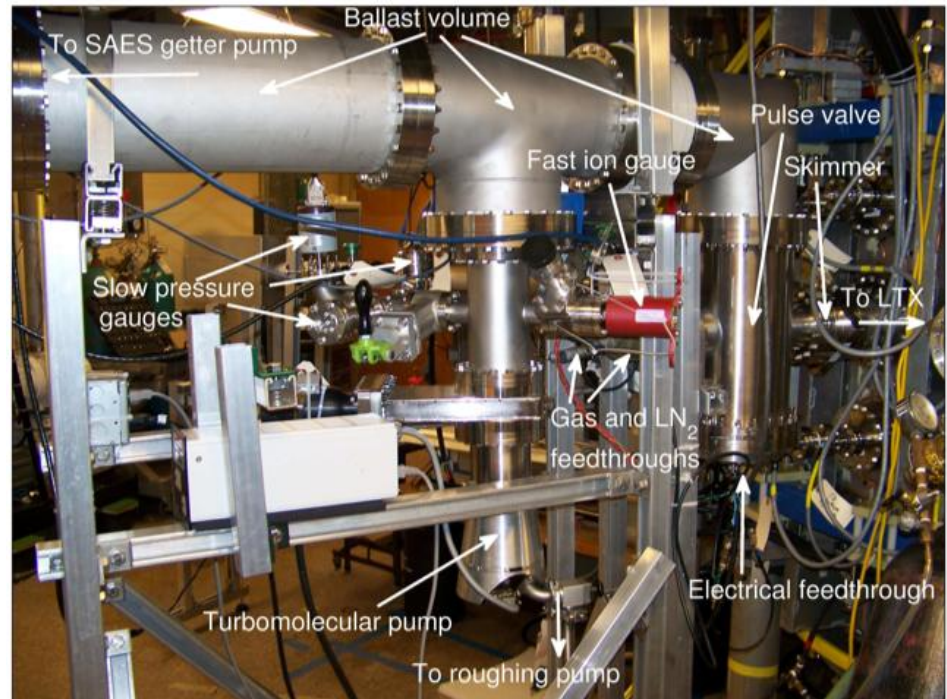
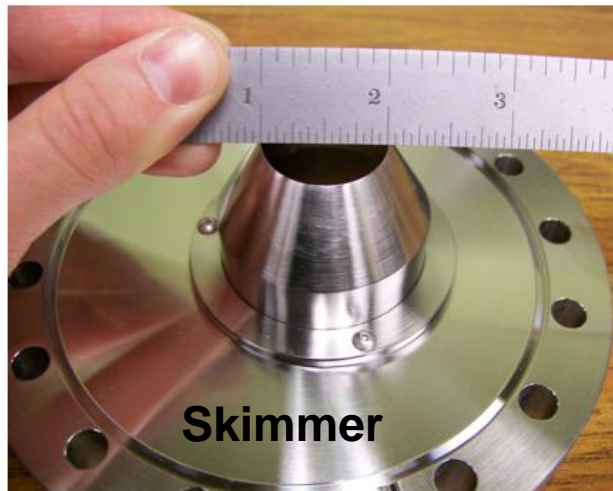
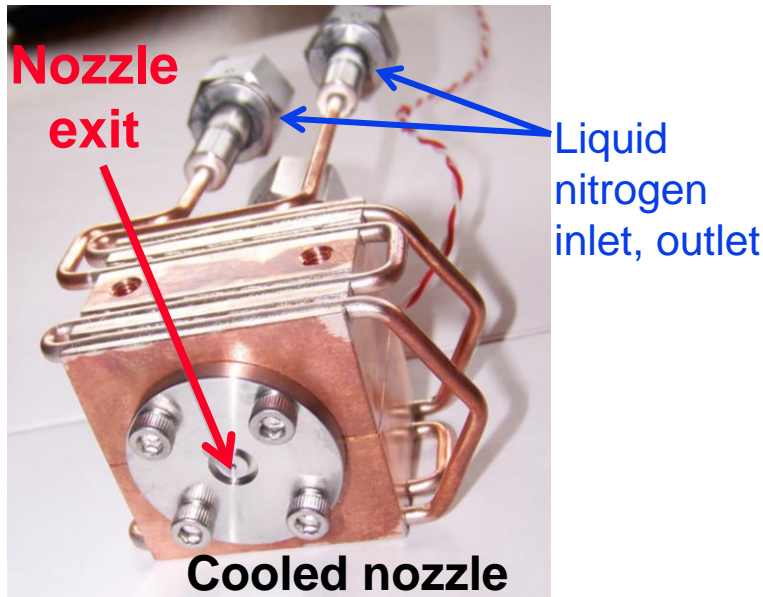


Particle fueling – molecular cluster injector (MCI)

LTX

- ◆ System requirements:
 - Low divergence conical nozzle (4.5°)
 - Close-coupled fast valve
 - Skimmer
 - Pumping for skimmed gas
 - Need for cryogenic operation unclear

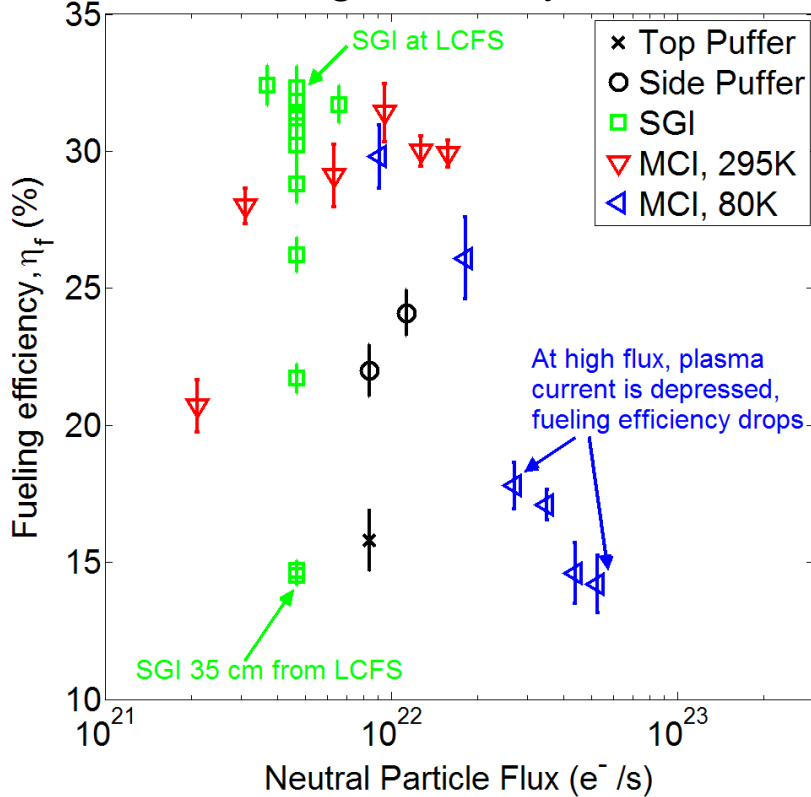


Installed on LTX with pumping

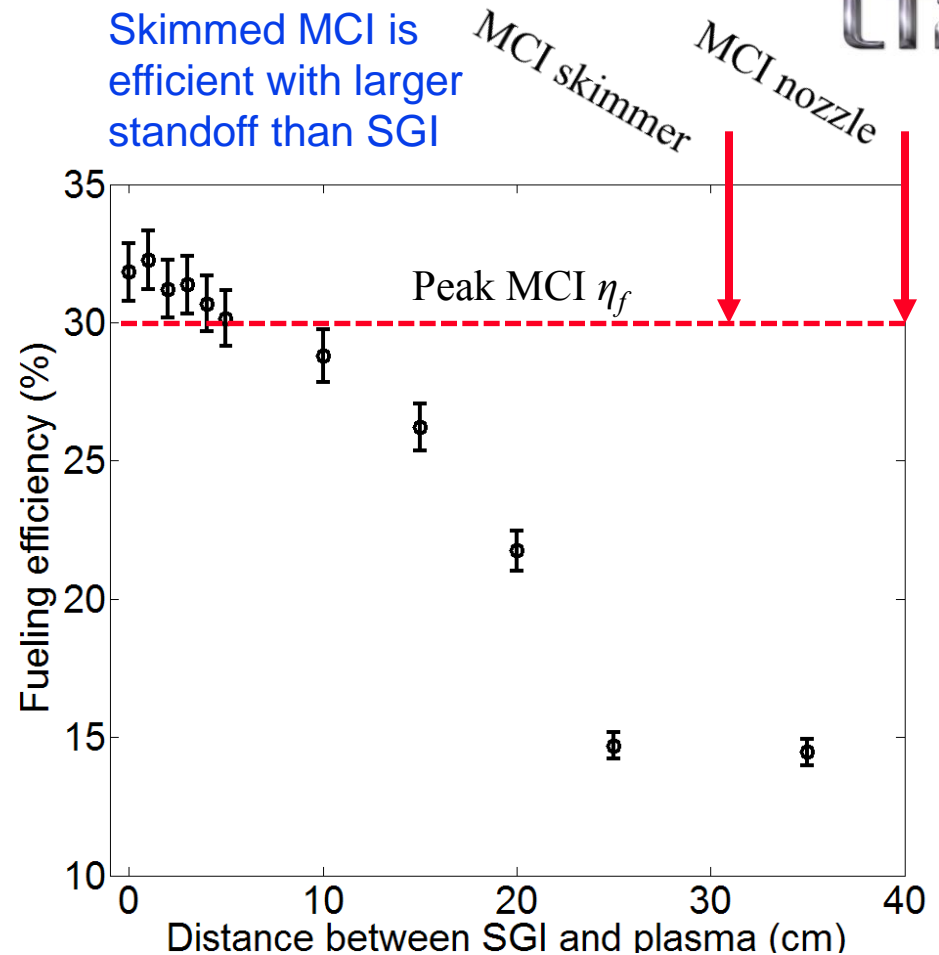
Cluster injector may provide effective discharge fueling

LTX

Fueling efficiency in LTX



Skimmed MCI is efficient with larger standoff than SGI



- Cluster injector can provide very high particle flux
 - Highest fluxes require cryogenic operation
 - Highest particle flux overfuels LTX

- SGI efficiency drops rapidly with increased standoff from plasma edge
- Skimmed injector can maintain high fueling efficiency with increased standoff