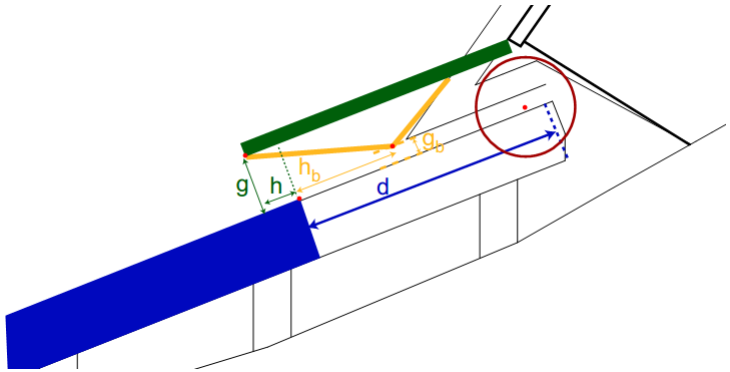
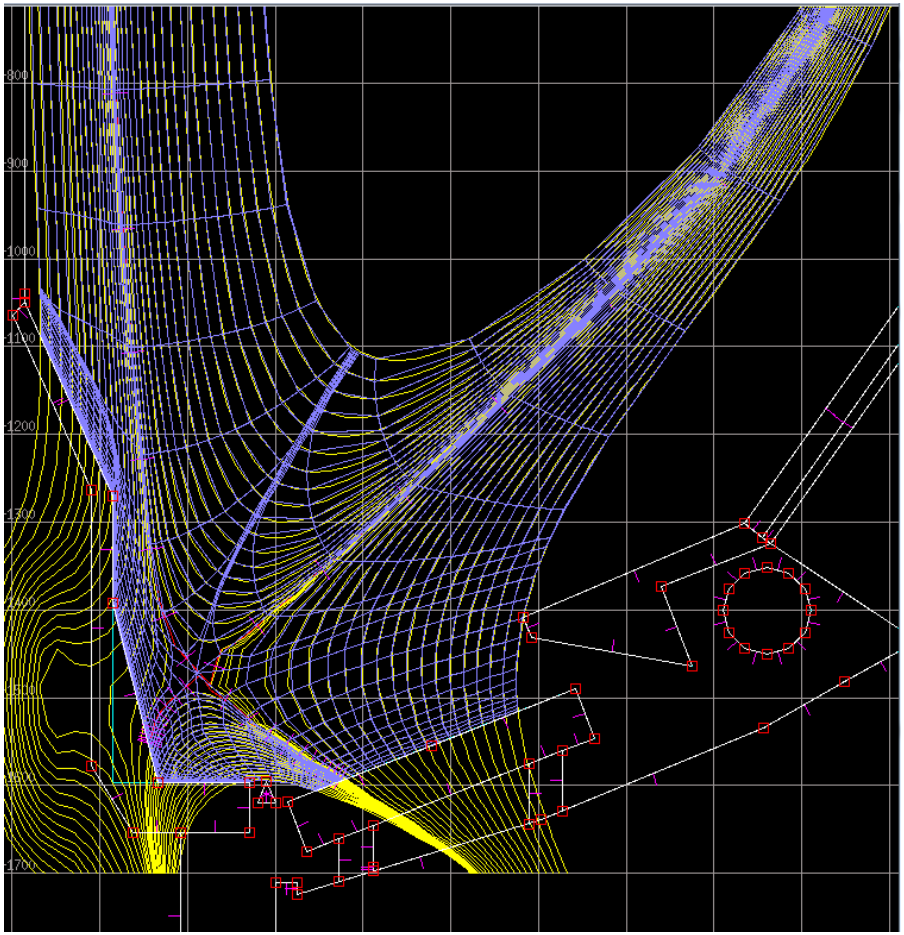
First attempt at SOLPS

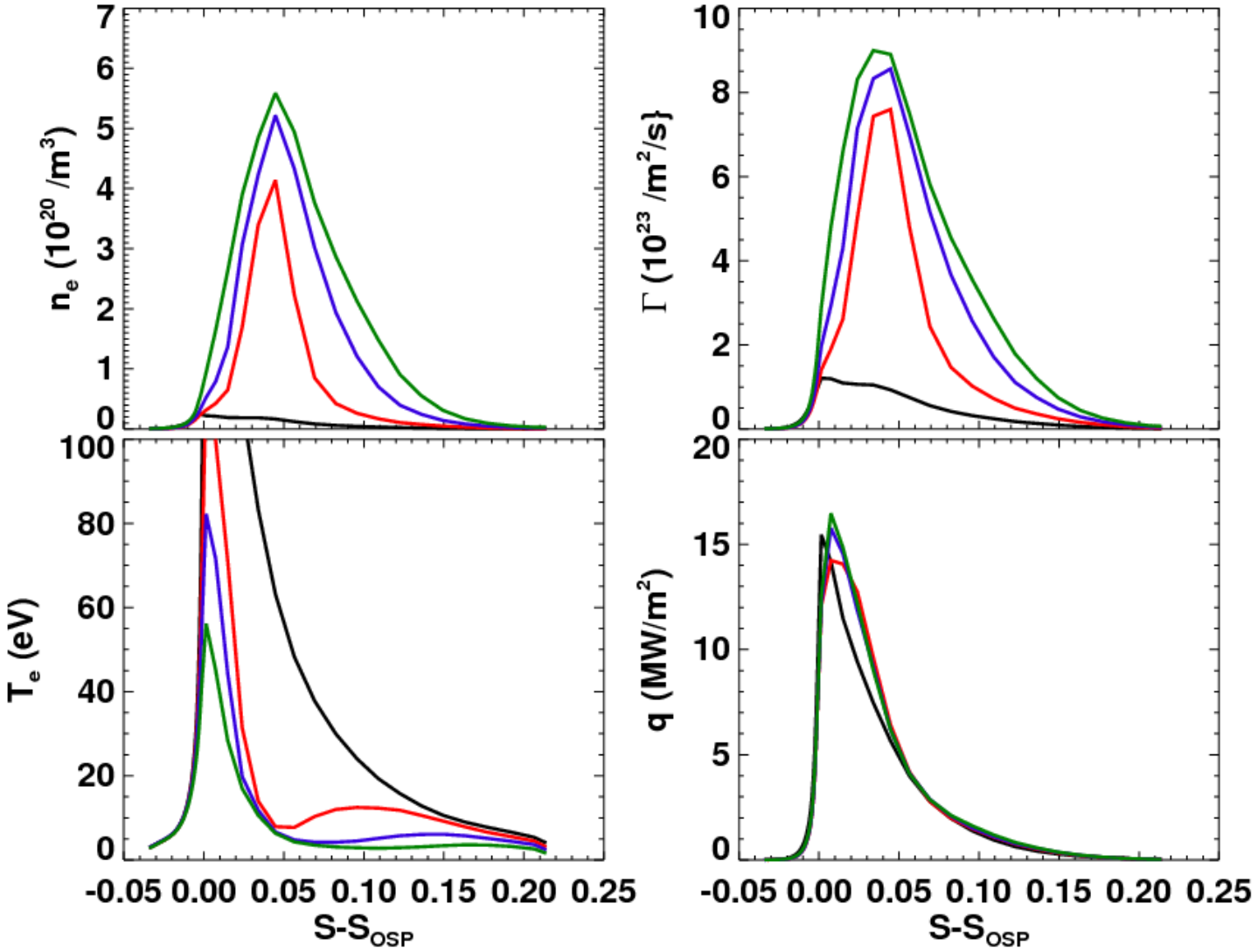
- Stefan's "Flared" equilibrium
  - Should be good for pumping
  - Had to move target around at inner leg
- Daren's "Cryo_3" pumping geometry
- Constant D=0.5, $\chi_{e,i}$=2.0 m^2/s
  - Gives λ_q^{mid} ~ 5mm
  - But no attempt to match expt
- P=10MW
- n_e at core boundary fixed
  - Particle throughput not controlled, but easy to do density scan
- So far only pumping at target
  - No pumping at cryo
  - Measure P at cryo (will be reduced with pump on)





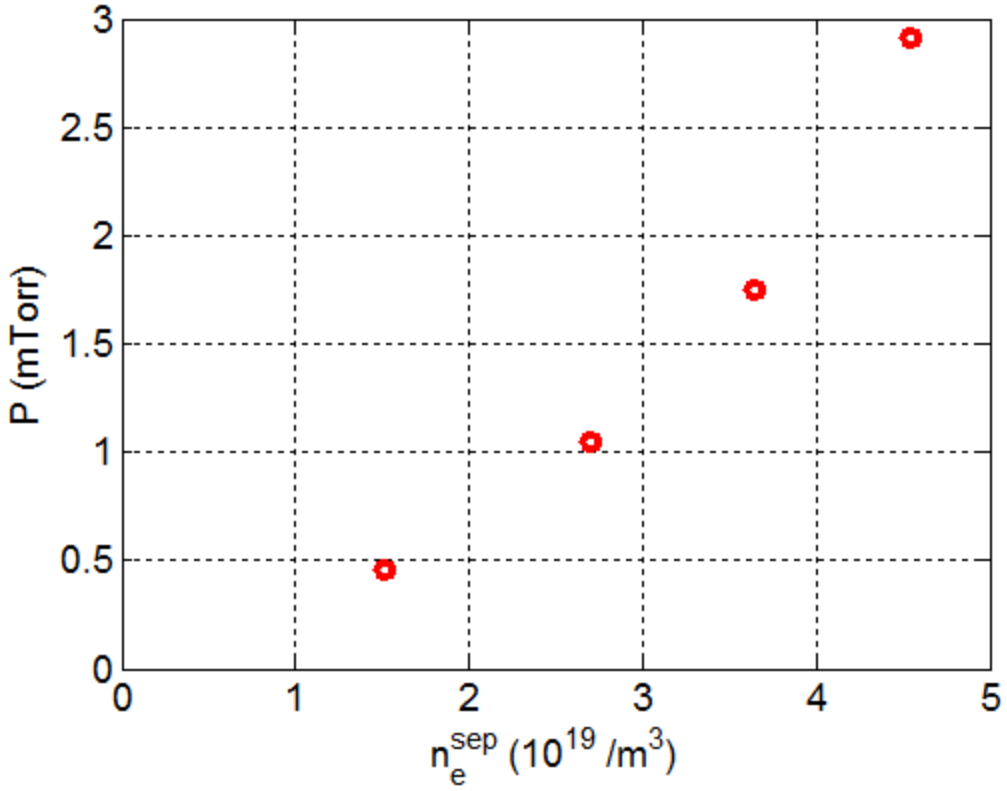
Outer divertor profiles for density scan

n_e^{core}=3/5/7/9 10^{19} /m^3, n_e^{sep}=1.5/2.7/3.7/4.6 10^{19} /m^3



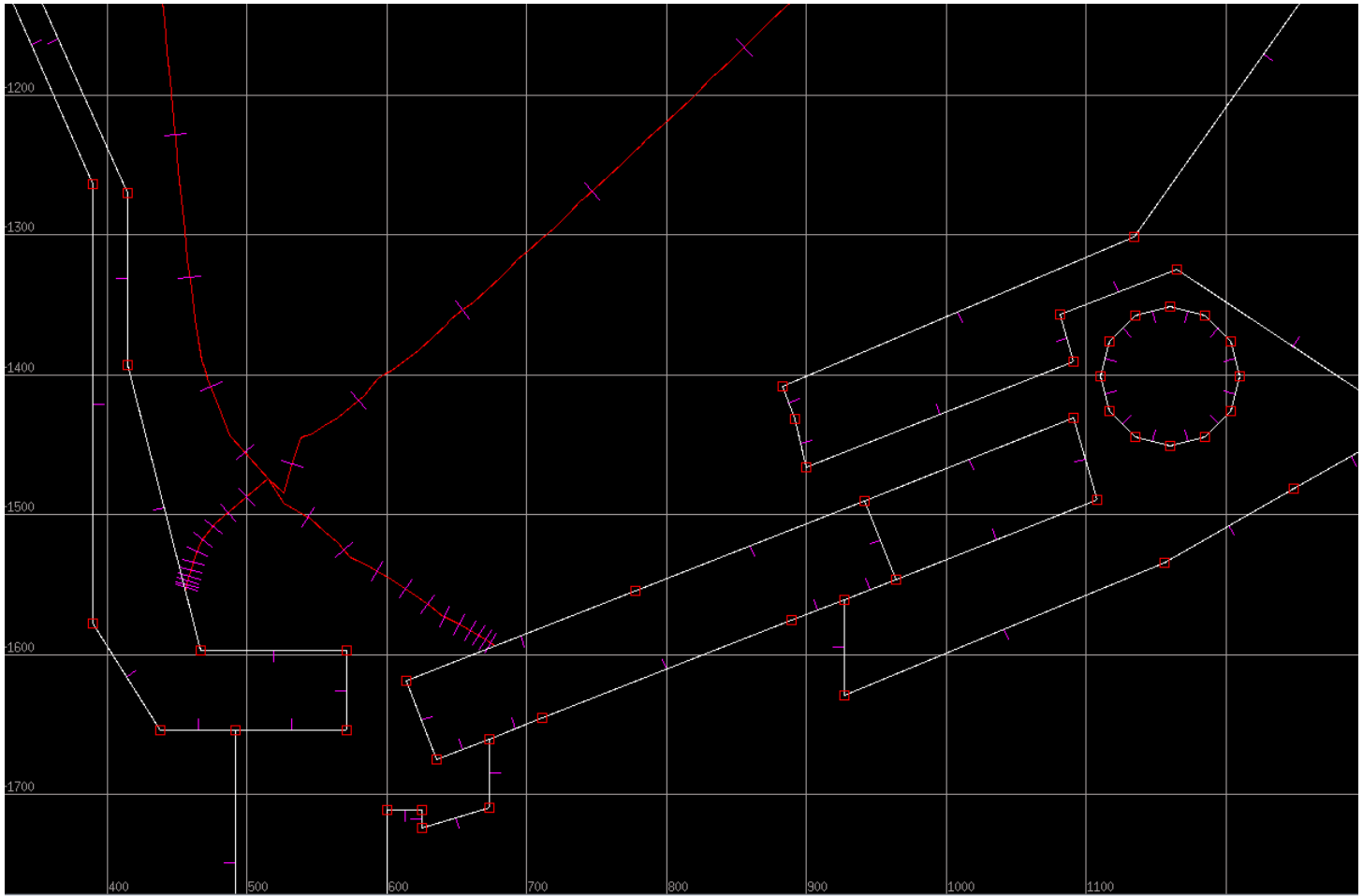
Plenum pressure vs. n_e^{sep}

- This is the pressure without the cryo; will be reduced when pumping is turned on
  - Not sure by how much yet
- P>1 mTorr at higher densities/lower temperatures
  - Enough for pumping?

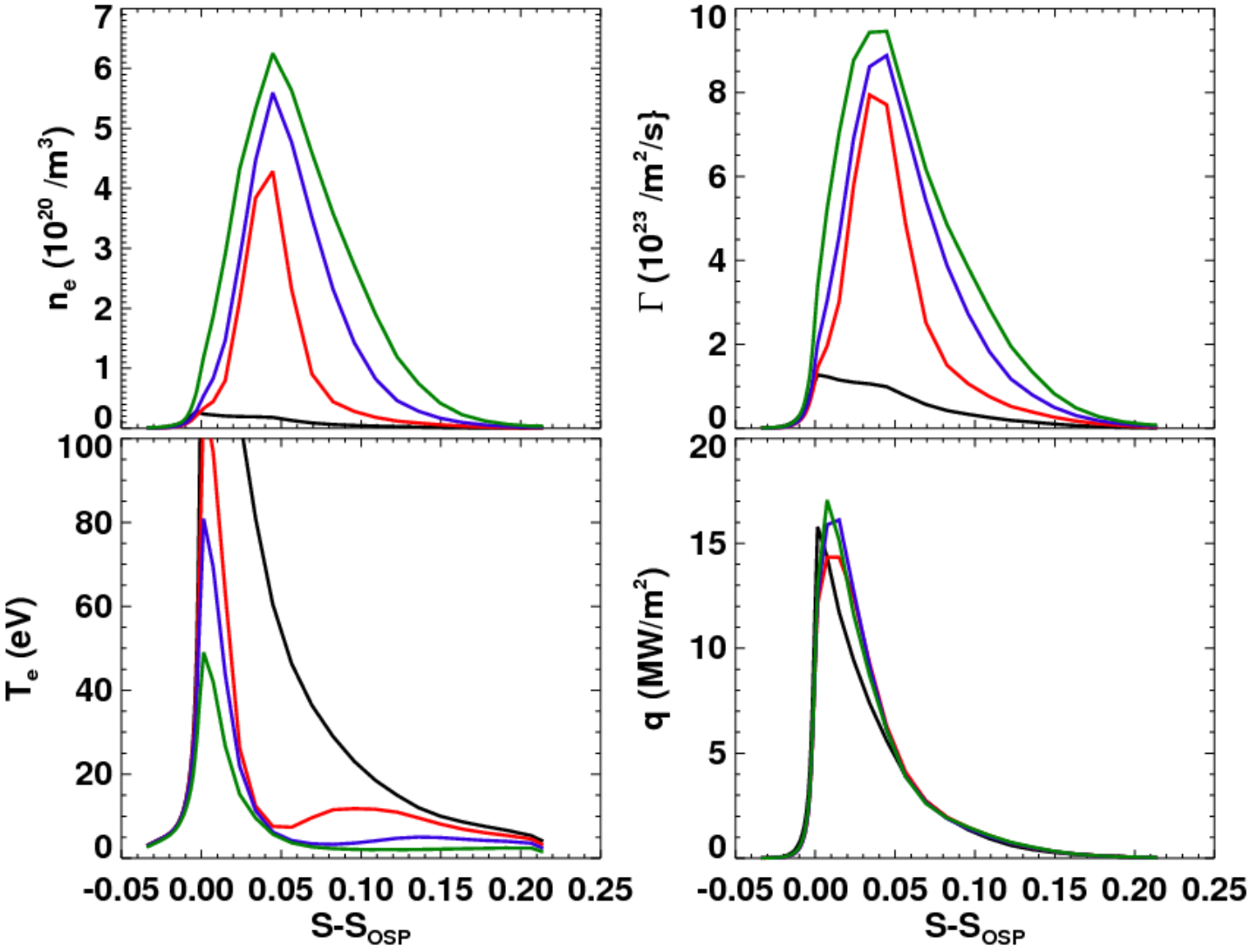


Second try

- Trying a new pump geometry with duct height ~ 4cm, length ~ 20 cm
- Still need to shield cryo (maybe tuck behind lower plate like “B”?)



Outer divertor profiles are pretty much the same as before



New duct gives ~30% higher P

- But conductance is probably smaller, so this difference might go away with pump on