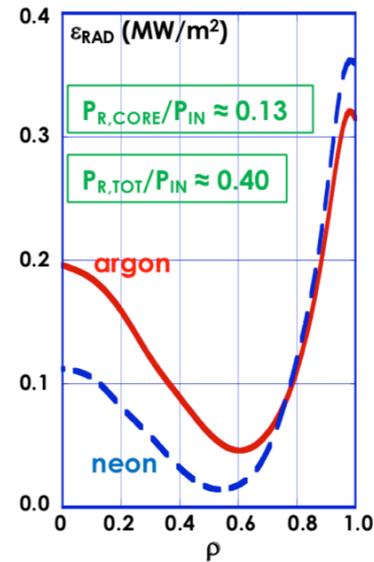
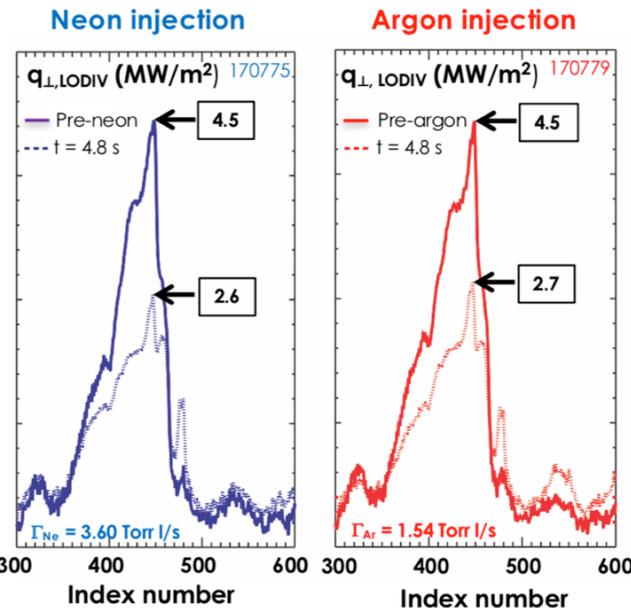
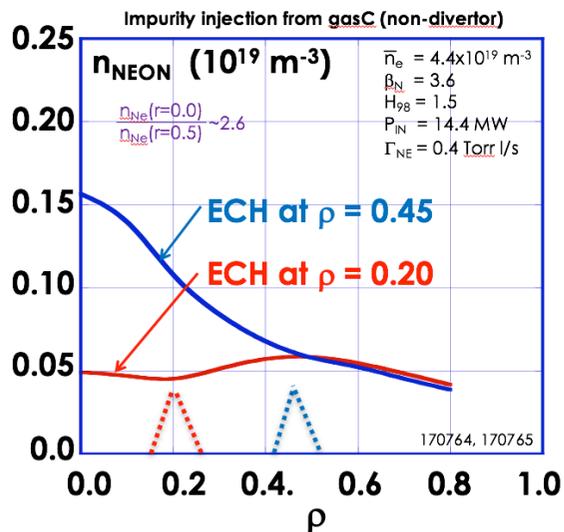


Ingredients for core-edge integration demonstrated in high- β_N hybrid plasmas in DIII-D

Core

- Hybrid scenario achieved $P_{inj}=15$ MW, $H_{98Y2}=1.6$, $\beta_N=3.6$, $n_e=3.5-6 \times 10^{19}$
- Stable to 2/1 tearing modes
- Passively stable at zero torque, $\beta_N \sim 2.3$ (hardware limited)



Pedestal and edge/divertor

- Ne and Ar injection leads to 40% heat flux reduction
- Off-axis EC injection causes core impurity peaking
- Deleterious core MHD associated with highest Ar, Ne
- Enhanced pedestal regime confirmed at $P_{inj} > 12$ MW, $q_{95} > 5.7$