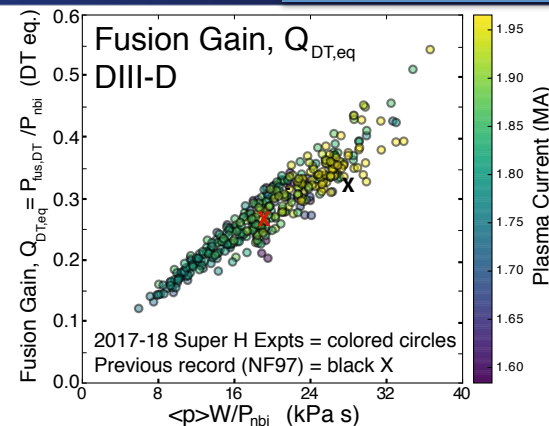
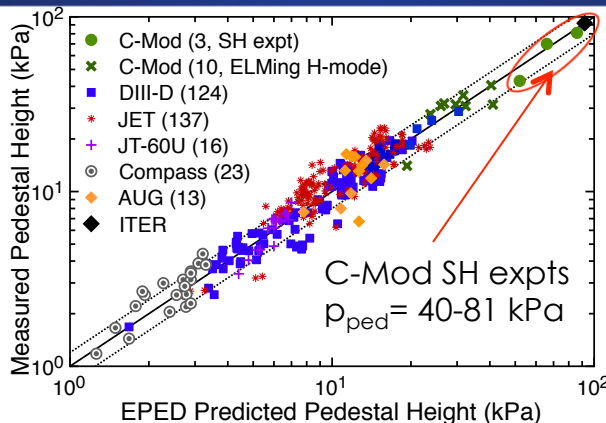
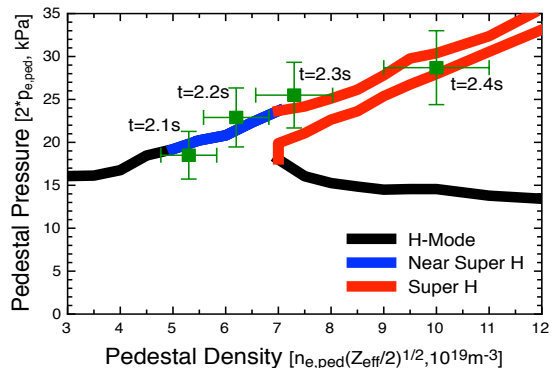


Super H-Mode Experiments on Alcator C-Mod and DIII-D Achieve High Fusion Performance, Record Pedestal Pressure

P.B. Snyder EX/2-4

Access to High Performance Super H-Mode Regime on DIII-D



- **Super H-mode (SH) predicted in strongly shaped plasmas: high p_{ped}, increases with n_e [Snyder NF15]**
- **Record pedestal pressures (~81 kPa) achieved in C-Mod SH experiments [Hughes NF18]**
 - Successful tests of EPED model up to ~90% of predicted ITER p_{ped}
- **Record DIII-D fusion gain (Q_{DT,eq} ~ 0.5). Q_{DT,eq}/IaB and Q_{DT,eq}/(RB)² highest reported on any tokamak**
- **High performance sustained w/ 3D magnetic perturbations to control n_e and impurity accumulation**
- **High p_{ped} and τ_E sustained with high rates of D₂ and N₂ puffing, strong reduction of divertor T_e**

Super H-mode compatible with both high fusion performance and high separatrix density for divertor solutions