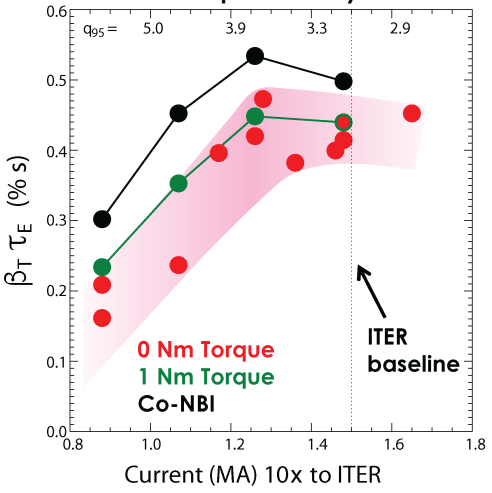
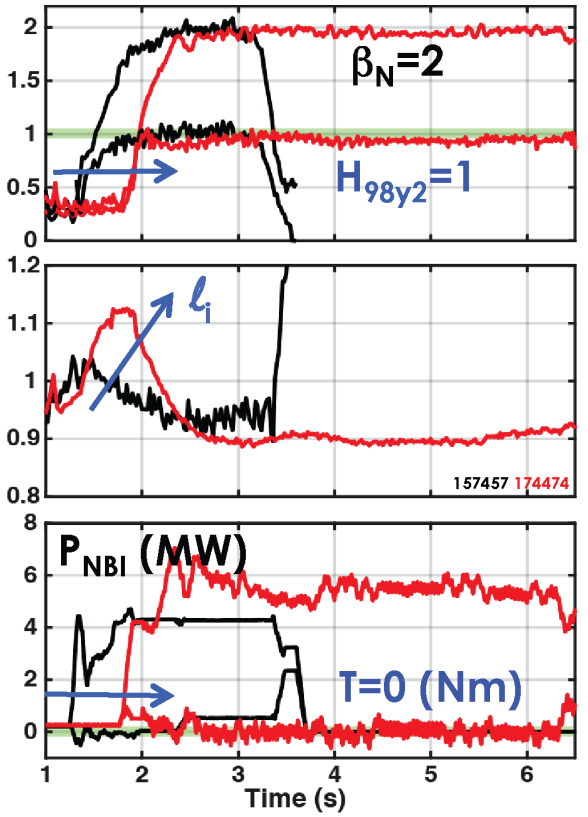
# Key Advance is Stable ITER Baseline Scenario With Zero Injected NBI Torque and Normalized Profiles Equivalent to Q=10 in ITER

- **Previous attempts at zero-torque ITER baseline were unstable to *n*=1 mode, likely due to steep "well" in current profile near *q*=2 surface**
  - Solution is to modify initial current profile by slowing $I_P$ ramp, delaying H-mode transition and adding low-level gas flow to regularize ELM frequency
- **Stable zero-torque operation obtained down to $q_{95}$=2.8, but fusion gain metric $\beta_T\tau_E$ doesn't improve below $q_{95}$=3.7**

***Stable ITER baseline scenario achieved with correct torque, $q_{95}$, $\beta_N$, $H_{98y2}$, $T_e/T_i$ and plasma shape***




Luce PPC/2-1

Luce, Nucl. Fusion