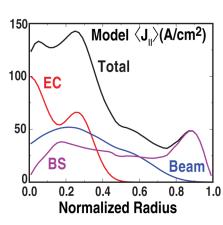
A High Internal Inductance $\ell_i > 1$ Tokamak Discharge is a Candidate for High β_N Steady-state Operation PPC/P2-35

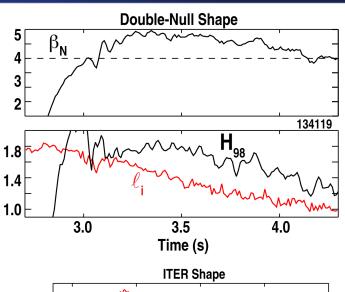
• DIII-D experiments have achieved β_N near 5 with excellent confinement

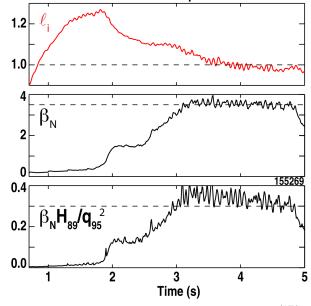
- Calculated ideal-wall n = 1 stability limit to β_N is above 5.5
- Experiment $\beta_N \approx$ no-wall n = 1 limit

• $\ell_i \approx 1$ operation is a possibility for ITER

- Especially if physics and/or 3-D fields limit the H-mode pedestal height
- In DIII-D, $β_NH_{89}/q_{95}^2 ≈ 0.3$, as needed for ITER steady-state mission
- Modeling predicts stationary current profile at $\beta_N = 4$, $\ell_i = 1.07$ in DIII-D
 - With EC and neutral beam power upgrades









J.R. Ferron/IAEA-FEC 2014/PPC P2-35