

# A High Internal Inductance $l_i > 1$ Tokamak Discharge is a Candidate for High $\beta_N$ Steady-state Operation

PPC/P2-35

- **DIII-D experiments have achieved  $\beta_N$  near 5 with excellent confinement**
  - Calculated ideal-wall  $n = 1$  stability limit to  $\beta_N$  is above 5.5
  - Experiment  $\beta_N \approx$  no-wall  $n = 1$  limit
- **$l_i \approx 1$  operation is a possibility for ITER**
  - Especially if physics and/or 3-D fields limit the H-mode pedestal height
  - In DIII-D,  $\beta_N H_{89}/q_{95}^2 \approx 0.3$ , as needed for ITER steady-state mission

- **Modeling predicts stationary current profile at  $\beta_N = 4$ ,  $l_i = 1.07$  in DIII-D**

- With EC and neutral beam power upgrades

