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Reversed shear confinement with off-axis neutral beams

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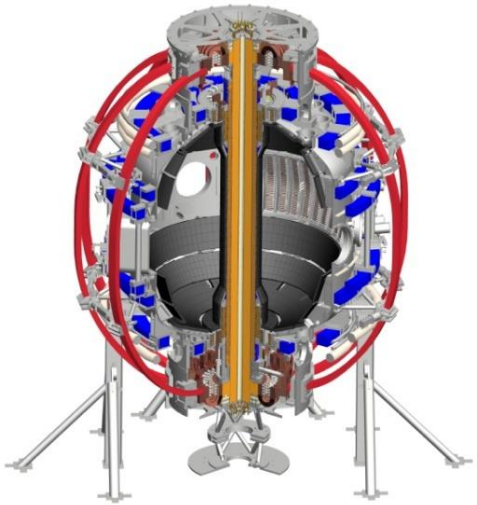
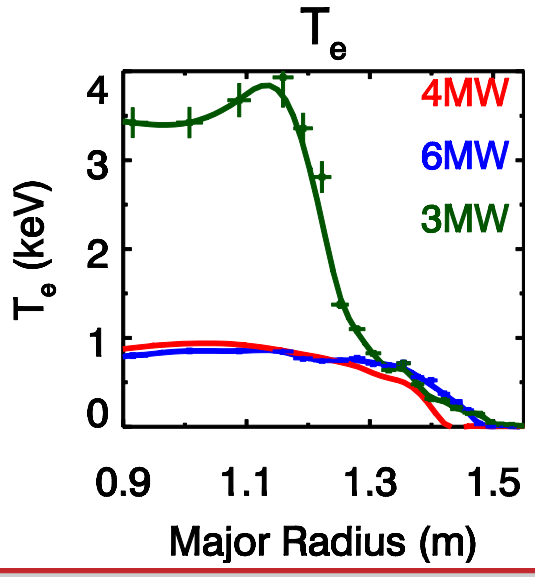
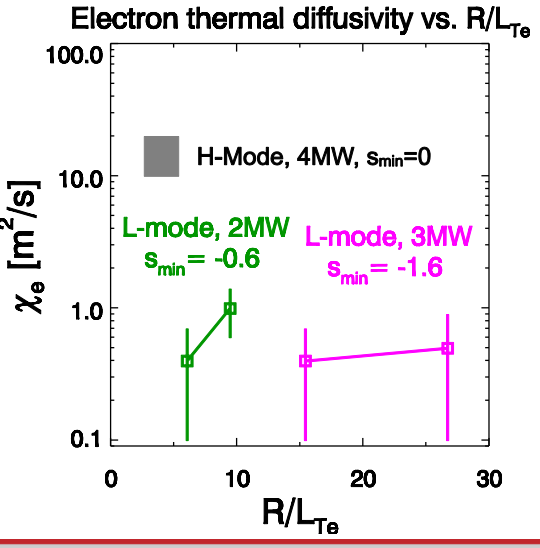
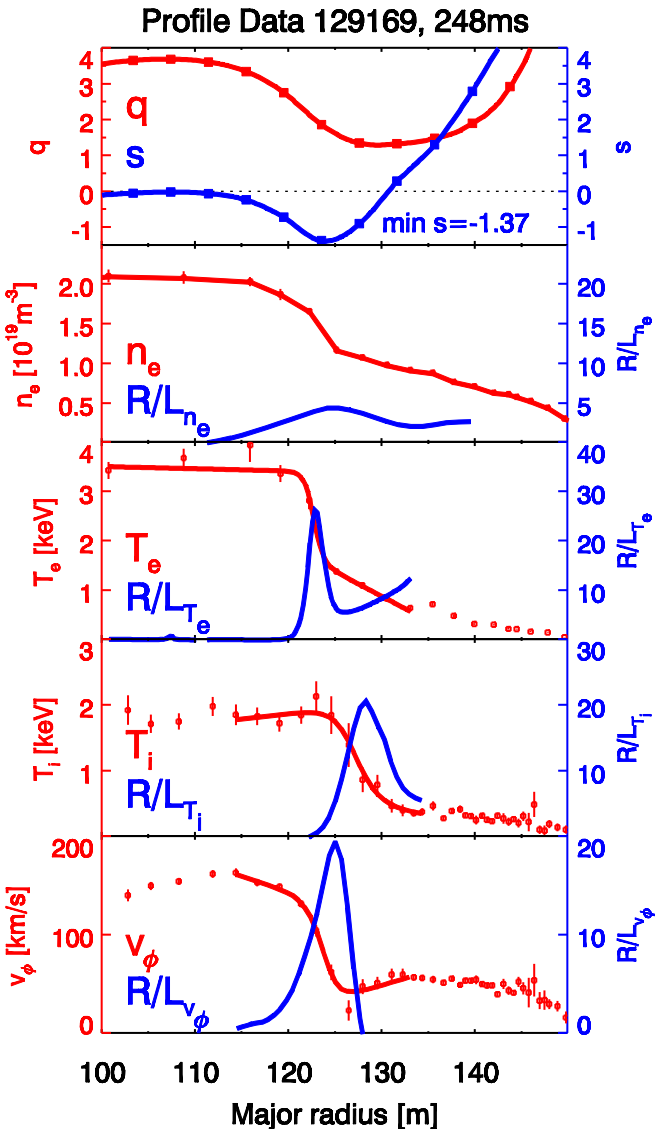


Reversed magnetic shear discharges has shown excellent transport properties

- ITB form at negative magnetic shear (ŝ < -0.4)
  - Te, Ti > 2 keV with 3MW input power (2NBI+1RF)
  - ETG suppressed via -ŝ
  - microtearing avoided via low β (n_e= 2×10^{19} L-modes)
  - GAE minimized via low beam power
- Low density L-mode
- Lasted only about 100-150 ms
  - Anomalous current relaxation
- Lack of off-axis current drive was *highly* limiting







Plan: Recover and extend reversed shear scenarios

- Beamline 2 offers an essential new tool for RS scenarios
  - This XP would benefit from completion of NBI characterization XPs
  - Use primarily 2ABC to sustain a RS q-profile
  - Examine R(q_{min}), stability of RS as a function of power, NBI source
- Higher TF likely beneficial
- Additional volt-seconds from center stack allows more flexibility in current ramp rates
- Try to develop RS H-modes
  - H-mode transitions often coincided with current redistribution
- Beneficial but not essential
  - RF elucidates ITB with high central T_e
  - MSE-LIF (for shots without source 1A)
  - Original high-k diagnostic measurements have already been compared with NL simulations and published, new high-k beneficial