Steady State Reversed Shear Discharges

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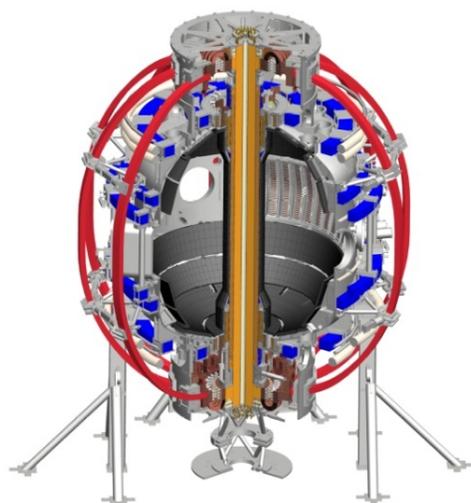
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Motivation and Overview

- NSTX had many examples of ITBs formed by reverse magnetic shear.
  - But the reversed shear was typically generated during the ramp, and was typically very transient.

- Might we be able to generate that reversed shear in a more steady state fashion with off-axis NBCD?

- What could we learn:
  - Might be an extreme test of OANBCD.
  - Might allow us to study better the dependence of core transport of the safety factor.
  - Might allow us to generate ITBs with an H-mode edge.
    - And study all kinds of fun MHD.

Shot Plan: ½ day

- First, observe the leading XPs on NBCD and scenario development:

- Start with 0.75 T, ~600-700 kA, 4 MW scenario
  - Lower current so the (centrally peaked) inductive current is small.
  - R_{tan} = [50,130] designed to provide minimal central NBCD.
    - But may need to do the [60,130] if 50 cm source is not well confined.
  - Replace the 50 (or 60) cm source with 90 cm source every once an a while for MSE.
  - Fairly large outer gap, to push the 130 source more off axis.

- Get shot to run through.

- Attempt a modest density scan to vary the relative contributions of NBCD and bootstrap current

Note…

- Note: there is a very very similar proposal in the T&T group.
- This is an excellent opportunity for a cross-cutting XP!
- Probably best if the T&T authors lead it, ASC support.