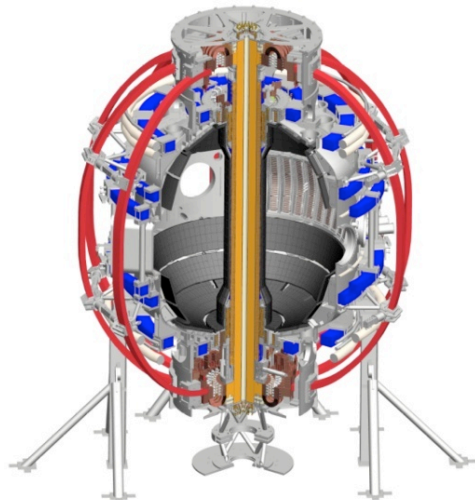


Characterization of the Pedestal Structure as function Ip, BT, and Pnbi

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NSTX-U Pedestal NSTX-U ROF
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Characterize the pedestal structure on NSTX-U and compare with previous NSTX results

- Fulfill R(15-1) milestone : Assess H-mode energy confinement, pedestal, and scrape-off-layer characteristics with higher BT, I_p and NBI heating power

Goals

- Map out the stability diagram for three I_p and 2 shaping parameters
 - Is NSTX-U still kink/peeling limited?
- Determine the pedestal scaling with β_{pol}
 - Compare with the scaling observed in other tokamaks
- Pedestal structure and evolution after L-H transition and between ELMs
 - Width-height scaling during the inter-ELM phase
- Turbulence characterization to understand the pedestal dynamics
 - Test the KBM hypothesis
- Generate database for testing EPED on ST and for gyrokinetic codes

Experimental Approach

- **Request: 1.5 run day of operation for each wall conditioning (B and Li)**
- Scan $I_p = [0.7, 1.0, 1.3]$ @ $BT = 0.5$ T, Medium triangularity
 - $P_{nbi} = [4, 6]$ MW [beam line #1]
 - $P_{nbi} = [4, 6]$ MW [beam line #2]
- Repeat at high triangularity [*and for low triangularity discharges if available*]
- Fix $I_p = 1.0$ MA and scan $BT = [0.4, 0.55, 0.65]$ T @high and medium triangularity
 - $P_{nbi} = [4, 6, 8]$ MW [Explore combination of the two beam lines]
- Diagnostics Required: All kinetic profiles (MPTS, CHERS etc...) and pedestal turbulence diagnostics