

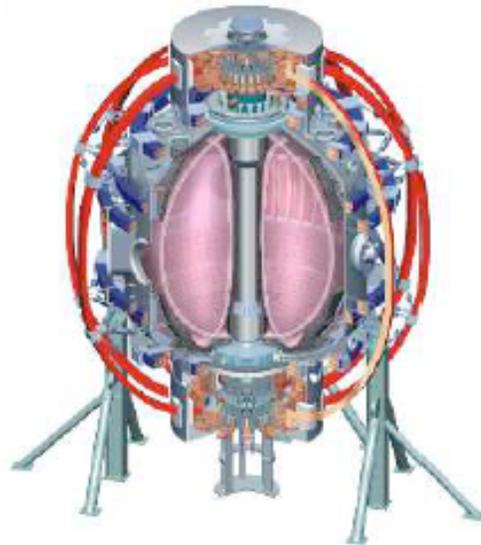
NSTX contributions to the ITPA Integrated Operational Scenarios group

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For the NSTX ASC TSG

**NSTX ITER/ITPA Discussion
PPPL
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Questions that NSTX can help resolve in integrated Operational Scenarios

- SSO-2.2 MHD in hybrid scenarios and effects on q-profile
 - Do we have a hybrid scenario on NSTX?
 - Large 1/1 mode with fast ion current diffusion
 - Long pulse MHD-free scenarios with $q(0) > 1$
 - What is a hybrid scenario?
 - Can we develop a “classic” Hybrid scenario with a strong 3/2 NTM?
 - Why are 3/2 NTMs so rare on NSTX?
 - Motivates collaboration with MHD group
- SSO-3.0 Modulation of actuators to qualify real-time profile control methods for hybrid and steady state scenarios
 - What determines J_{NBI} profile in long-pulse scenarios?
 - Activity fits well with NSTX long term research goals
 - Motivates collaboration with fast ion group
- MDC-13 Vertical Stability Physics and performance limits in Tokamaks with highly elongated plasmas
 - What determines the operating limits imposed by the n=0 mode?
 - Continues work already underway
 - Topic currently supervised under MHD ITPA group
- ELM control
 - Can NSTX develop and understand the physics of an attractive ELM control scenario?
 - High priority for ITER
 - Uses unique capability to trigger ELMs with RMP coils
 - Motivates collaboration with the boundary group