



NSTX



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# Assessment of Mo tile performance for NSTX-U

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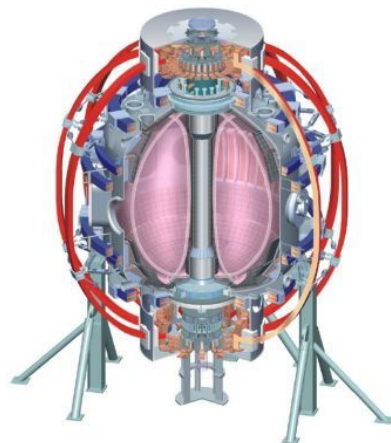
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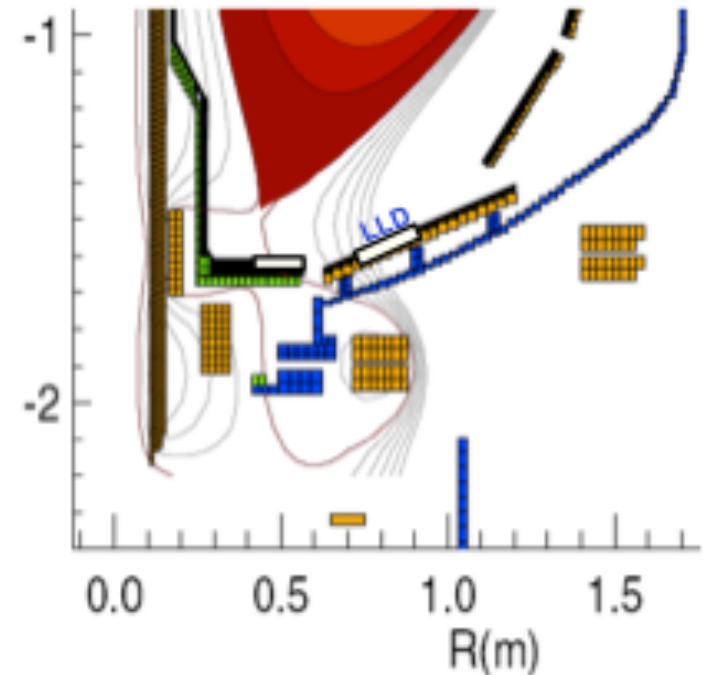
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NSTX Results Forum 2011-2012  
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 March 15 – 18, 2011



# Motivation

- The baseline PFC in NSTX-U is graphite
- However, we ran with up to  $P_{\text{nbj}}=4$  MW with the strike point directly on the LLD in 2010 with no deleterious effects
  - These were low  $I_p$  discharges ( $\sim 0.8$  MA)
  - But low magnetic flux expansion (higher heat flux)
- This suggests that Mo + lithium wall conditioning may be a suitable PFC for NSTX-U
- We need a wider range of discharges on Mo to determine this
  - Need to keep  $T_{\text{surf}}$  below administrative limits



## Proposed XP would scan extremes of $I_p$ , $B_t$ and $P_{nbi}$ to evaluate Mo tile performance for NSTX-U

- Run with outer strike point on Mo tiles
  - Scan extremes of  $I_p$ ,  $B_t$  and  $P_{nbi}$  in NSTX-U discharge shape
    - $I_p = 0.8, 1.0, (1.2?)$  MA
    - $B_t = 0.45$  and  $0.55$  T
    - $P_{nbi} = 2, 4, (6?)$  MW
- Evaluate  $T_{surf}$  and heat flux on Mo tiles
  - Possibly decrease magnetic flux expansion to increase heat flux towards predicted NSTX-U heat flux
  - Depends on the ability to monitor  $T_{surf}$  in the control room and remain below administrative limits
- Evaluate Mo erosion under these conditions
  - Divertor spectroscopy and core survey spectrometers
- This XP would benefit from a boronization campaign if available during the run
  - Comparison between boronization and lithiumization for Mo performance