Proposal and Attendance Form for NSTX Research Forum 2001

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Please write in the boxes below a one-page abstract of your proposal to be presented:

Title: Operational Requirements for High-β, High-Bootstrap-Fraction Discharges in NSTX

Abstract: The purpose of this talk is to review and focus on what operational capabilities need to be developed during the next several years on NSTX in order to attempt to reach theoretically predicted ideal β limits in regimes with high bootstrap fraction. In particular, tools to reliably modify the current and pressure profiles away from those presently obtained will be crucial and will require significant development. Further, as machine conditions improve and avoiding wall interactions becomes more critical, proposed control system improvements will become a high priority. These include not only boundary control, but also the desire to control heating powers and deposition from both NBI and HHFW in real-time. Underlying all of this research are key diagnostics to measure kinetic profiles, magnetic fluctuations, and other equilibrium quantities. Finally, as is already known, if the optimal plasma profiles can be obtained, the predicted limiting mode is the wall-stabilized kink mode. Unambiguous observation of the resistive wall mode requires the successful implementation of several diagnostics and is an obvious pre-requisite to developing any method attempting to stabilize the mode.

The desired outcome of this talk is to spark discussion about what specific operational techniques and hardware will be required for NSTX to reach its long-term MHD stability goals.

Choose only one topical session by inserting X for each proposal (Use separate forms for separate proposals)	**2000 Results** (mbell@pppl.gov) **& 2001 Research Program** (esynakowski@pppl.gov) (Please submit by January 10, 2001) ___ET1: Macroscopic Stability ___ET2: Transport & Turbulence ___ET3: High Harmonic Fast Wave & Electron Bernstein Wave ___ET4: Coaxial Helicity Injection ___ET5: Boundary Physics **2002-2005 Research Opportunities** (mpeng@pppl.gov) (Please submit by January 11, 2001) ___TG1: Noninductive Startup ___TG2: Heating, Current Drive & Fueling _**X**_TG3: Macroscopic Stability ___TG4: Transport & Turbulence ___TG5: Energetic Particle Physics ___TG6: Multiphase Interface (Boundary Physics) **Fluctuations Measurement (**esynakowski@pppl.gov**)** __Fluctuations Measurement proposals

Select a presentation option by inserting X:

_X_Oral presentation in person

___Remote presentation via ShowStation and speakerphone

___Ask discussion leader to include in discussion

___No need to present, but include in meeting summaries

___Attend Forum only (in person or with remote access)

Special Requests for your proposal (projector type, time constraints, etc.):

Talk will be 10-15 minutes

Please return this document via e-mail attachment to jrobinson@pppl.gov, jsavino@pppl.gov, and the corresponding organizer listed above. Please e-mail questions or comments to the organizers listed above.