Proposal and Attendance Form for NSTX Research Forum 2001

First Name and Initial(s)	Rajesh
Last Name	Maingi
Email address	rmaingi@pppl.gov
Mailing address	PPPL
Phone number	
Institution	Oak Ridge National Laboratory
Co-authors	C. Bush, B. LeBlanc, S. Kaye

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

Title: Characterization of H-mode Access Conditions in NSTX

Abstract:

An NSTX Experimental Proposal (#18) already exists with the above title, and the run days dedicated to this XP in CY 2000 produced H-mode phases of duration between 500 micro-seconds and 65ms. Here we propose to 1) lengthen the H-mode phases, both to allow stability studies with broad pressure profiles, and 2) actually measure the power threshold as a function of density, toroidal field, and plasma current. This proposal is complementary to the one from Bush, et. al., which focuses on other details of the power threshold and H-mode physics.

The present H-mode phases in NSTX were obtained with a single NBI source with power levels between 0.9 and 1.5 MW. The loner H-mode phases showed an increase in MHD activity about 30-40ms after the transition, with signature of radiation-driven islands. Carbon accumulation was observed, and the behavior was typical of ELM-free H-modes from tokamaks. The data suggest that we are marginal in heating power over the L-H power threshold, so we propose to increase the heating power (incrementally) and/or reduce the power threshold through continued and perhaps more aggressive wall conditioning. We may also reduce the power threshold by reduction of density and toroidal field. Finally we propose to investigate and hopefully improve the reproducibility of H-mode access by adjusting between-shot Helium Glow Discharge Cleaning parameters and also by increasing the number of gas puff locations while maintaining constant gas input rate.

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 **x** 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 __TG3: Macroscopic Stability __TG4: Transport & Turbulence __TG5: Energetic Particle Physics

	__TG6: Multiphase Interface (Boundary Physics) __TG7: Plasma Science User Research **Fluctuations Measurement** (esynakowski@pppl.gov) (Please submit by January 10, 2001) __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

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

Must run parallel ET5 session – must have flexible presenting time

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.