



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: Possible UCSD Edge Turbulence Studies on NSTX

Abstract: Edge plasma transport in ST devices impacts a number of issues that determine ST performance. Well recognized examples include the impact of ExB particle and heat transport on divertor particle and power handling and the possible generation of improved confinement with the advent of strongly heated ST plasmas. However, there are a number of turbulence issues, perhaps not so well recognized, which might also bear on the performance of ST devices. Examples include the generation of significant magnetic fluctuations, with possible implications for heat transport and magnetic Reynolds stress generation (which may counteract electrostatic shear flow generation), intermittent or bursty fluctuations which cause significant first-wall recycling. A number of more speculative issues might also be relevant. For example, do turbulent magnetic dynamos occur in the ST? Can parallel current fluctuations (driven for example by CHI) trigger magnetic reconnection events and concomitant magnetic heat transport? What impact do active walls (such as liquid Lithium) have on edge turbulence and transport? In this talk I summarize some of these issues and I discuss available edge turbulence diagnostics and their associated experimental observables along with relevant turbulence analysis tools and approaches. Approaches to validate edge turbulence simulations are briefly discussed, possible additions to the NSTX program's edge turbulence diagnostics are then proposed, and the potential operational and/or scientific interest is summarized.

<p>Choose only one topical session by inserting X for each proposal (Use separate forms for separate proposals)</p>	<p><u>2000 Results</u> (mbell@pppl.gov) <u>& 2001 Research Program</u> (esynakowski@pppl.gov) (Please submit by January 10, 2001)</p> <p><input type="checkbox"/> ET1: Macroscopic Stability <input type="checkbox"/> ET2: Transport & Turbulence <input type="checkbox"/> ET3: High Harmonic Fast Wave & Electron Bernstein Wave <input type="checkbox"/> ET4: Coaxial Helicity Injection <input type="checkbox"/> ET5: Boundary Physics</p> <p><u>2002-2005 Research Opportunities</u> (mpeng@pppl.gov) (Please submit by January 11, 2001)</p> <p><input type="checkbox"/> TG1: Noninductive Startup <input type="checkbox"/> TG2: Heating, Current Drive & Fueling <input type="checkbox"/> TG3: Macroscopic Stability <input type="checkbox"/> TG4: Transport & Turbulence <input type="checkbox"/> TG5: Energetic Particle Physics <input type="checkbox"/> TG6: Multiphase Interface (Boundary Physics)</p> <p><u>Fluctuations Measurement</u> (esynakowski@pppl.gov)</p>
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	(Please submit by January 10, 2001) X__Fluctuations Measurement proposals
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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.):

Computer projector for SVGA/XGA presentation from Windows machine

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.