



## 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:**

<p><b>Title: Studies of Boundary Turbulence and Transport in NSTX</b></p> <p><b>Abstract:</b> The National Spherical Torus Experiment (NSTX) is a low-aspect-ratio torus. It has features similar to double-null tokamak configurations but with different parameter regimes: large Larmor radius, thus relative thick edge pedestal and large mirror ratio. Preliminary simulation results show that for the plasma conditions similar to DIII-D, the NSTX configuration yields larger fluctuations on the high-field side of the torus inside the separatrix and shorter poloidal correlation length. The dominant modes and turbulence saturation levels, as well as transport in NSTX are similar to tokamaks such as DIII-D. However, for different parameters, such as low temperature and density, we find that fluctuating levels are lower and transport is also reduced. It is also demonstrated that there is a strong poloidal asymmetry of particle flux in the proximity of the separatrix. The poloidal fluctuation phase velocity from the simulation results of the boundary turbulence shows in the electron drift direction inside separatrix, as in many other fusion devices. Due to large Larmor radius, the radial streamer structure has been observed across the separatrix.</p>
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<p>Choose only one topical session by inserting X for each proposal (Use separate forms for separate proposals)</p>	<p><b>2000 Results</b> (<a href="mailto:mbell@pppl.gov">mbell@pppl.gov</a>)  <b>&amp; 2001 Research Program</b> (<a href="mailto:esynakowski@pppl.gov">esynakowski@pppl.gov</a>)          (Please submit by January 10, 2001)</p> <p> <input type="checkbox"/> ET1: Macroscopic Stability  <input checked="" type="checkbox"/> ET2: Transport &amp; Turbulence  <input type="checkbox"/> ET3: High Harmonic Fast Wave &amp; Electron Bernstein Wave  <input type="checkbox"/> ET4: Coaxial Helicity Injection  <input checked="" type="checkbox"/> ET5: Boundary Physics         </p> <p><b>2002-2005 Research Opportunities</b> (<a href="mailto:mpeng@pppl.gov">mpeng@pppl.gov</a>)          (Please submit by January 11, 2001)</p> <p> <input type="checkbox"/> TG1: Noninductive Startup  <input type="checkbox"/> TG2: Heating, Current Drive &amp; Fueling  <input type="checkbox"/> TG3: Macroscopic Stability  <input checked="" type="checkbox"/> TG4: Transport &amp; Turbulence  <input type="checkbox"/> TG5: Energetic Particle Physics         </p>
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	<p>__TG6: Multiphase Interface (Boundary Physics) <b>Fluctuations Measurement</b> (<a href="mailto:esynakowski@pppl.gov">esynakowski@pppl.gov</a>) (Please submit by January 10, 2001) _x_Fluctuations Measurement proposals</p>
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**Select a presentation option by inserting 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.):**

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