



## Proposal and Attendance Form for NSTX Research Forum 2001

First Name and Initial(s)	Paul T.
Last Name	Bonoli
Email address	Bonoli@psfc.mit.edu
Mailing address	NW17-121, MIT, Cambridge, MA 02139
Phone number	(617) 253-0992
Institution	Massachusetts Institute of Technology
Co-authors	J. Spaleta (PPPL), C.K. Phillips (PPPL), R. Majeski, (PPPL), J.R. Wilson (PPPL), J. Menard (PPPL)

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

**Title: Full-wave simulations of HHFW in NSTX using exact MHD equilibria**

**Abstract:** The full-wave ICRF electromagnetic field solver TORIC has been modified to use numerical MHD equilibria computed by the EFIT code. Exact MHD equilibrium solutions provide a more realistic geometry than is typically available from an analytic moments representation, especially for highly shaped, low aspect ratio configurations such as NSTX. Inside the last closed flux surface, TORIC's analytic MHD model was replaced by the numerical equilibrium solution from EFIT. Outside the last closed flux surface, vacuum flux surfaces were constructed to accommodate the boundary conditions employed in TORIC at the antenna and conducting wall. An IDL interface was written to read the EFIT reconstruction of each NSTX discharge, stored in the MDSPLUS data system. This MHD solution is then used in TORIC. Simulation results will be presented for HHFW electron heating experiments carried out in NSTX during the Fall, 2000 campaign. We will also discuss future plans (FY2001) for comparing the predictions for electron heating and current drive from the TORIC – EFIT model with the 1-D integral wave code METS and the ray tracing code CURRAY.

<p>Choose only one topical session by inserting X for each proposal (Use separate forms for separate proposals)</p>	<p><b><u>2000 Results</u></b> (<a href="mailto:mbell@pppl.gov">mbell@pppl.gov</a>)  <b><u>&amp; 2001 Research Program</u></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 type="checkbox"/> ET2: Transport &amp; Turbulence  <input checked="" type="checkbox"/> ET3: High Harmonic Fast Wave &amp; Electron Bernstein Wave  <input type="checkbox"/> ET4: Coaxial Helicity Injection  <input type="checkbox"/> ET5: Boundary Physics         </p> <p><b><u>2002-2005 Research Opportunities</u></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 type="checkbox"/> TG4: Transport &amp; Turbulence  <input type="checkbox"/> TG5: Energetic Particle Physics  <input type="checkbox"/> TG6: Multiphase Interface (Boundary Physics)         </p> <p><b><u>Fluctuations Measurement</u></b> (<a href="mailto:esynakowski@pppl.gov">esynakowski@pppl.gov</a>)          (Please submit by January 10, 2001)</p> <p> <input type="checkbox"/> Fluctuations Measurement proposals         </p>
---	---



**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.):**

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