



## Proposal and Attendance Form for NSTX Research Forum 2001

First Name and Initial(s)	Stephen C.
Last Name	Jardin
Email address	<a href="mailto:Jardin@pppl.gov">Jardin@pppl.gov</a>
Mailing address	PPPL
Phone number	X2635
Institution	PPPL
Co-authors	None as yet

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

**Title: A proposal for startup of NSTX without using the OH coils**

**Abstract:** Three methods are described for startup of a ST without using the OH coils. The first method requires new internal coils. The plasma is formed around the internal coils, like the S-1 plasma was formed around the flux core, and the separate plasmas are merged together and compressed. This is similar to the scheme used in MAST. The second method uses a “plasma OH-coil”. It involves first creating a plasma discharge from the inside bottom to the inside top of the vacuum vessel. The toroidal plasma current in this discharge plays the role of the current normally in the OH coil. When this discharge is made to terminate abruptly and the outer coils are swung appropriately, a ST plasma discharge is formed through induction. The third method uses a new PF coil on the outer midplane, just outside the vacuum vessel and an insulating break between the bottom and top of the vacuum vessel. The new coil initially has a current of several hundred kA. A large bias voltage is placed between the upper and lower halves of the vacuum vessel, causing a halo current to flow along the field lines. The toroidal part of this current is strong enough to make a “o-point” just inside the vessel. Subsequent ramping down and reversing the new outer midplane PF coil will induce a large toroidal current in the plasma with good closed field lines. A “normal” 1+ MA ST plasma can be formed in this manner. Variants of this method could use two coils above and below the midplane rather than one coil on the midplane. Initial TSC simulations will be presented.

<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 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 checked="" 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>)</p>
---	---



	(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 (in person or with remote access)

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

I would like to be as early as possible in the session as I am traveling to Boston that evening and need to leave early.
--

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.