Proposal Submission for NSTX Research Forum 2001

Title	HHFW Studies in Advanced Physics Regimes
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Choose only one topical session by inserting X (Please use separate forms for individual proposals)	**2001 Research Program** (mbell@pppl.gov) __ET1: Macroscopic Stability __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) __TG1: Noninductive Startup x_TG2: Heating, Current Drive & Fueling __TG3: Macroscopic Stability __TG4: Transport & Turbulence __TG5: Energetic Particle Physics __TG6: Multiphase Interface __TG7: General Plasma Science Research **Fluctuations Measurement** (esynakowski@pppl.gov) __Fluctuations Measurement proposals

Select a presentation option by inserting X:

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

None

Please write a one-page description of your presentation:

With full power installed in NB and HHFW, NSTX will enter the advanced physics operation phase where β~40% and I_{bs}/I=75% may be attained at a pulse length of ~5 s. We will investigate the roles of HHFW power during startup and flattop phases in terms

of heating and current drive/profile control, and analyze corresponding experimental results.We will investigate regimes of optimum current drive (efficiency, location) with respect to $k_{||}$ and impurity H concentration.
Kinetic modeling of ion absorption of HHFW using Monte Carlo Fokker Planck solver in conjunction with CURRAY will be carried out, for both ambient and beam energetic ions. This should serve as a good benchmark for calculations assuming Maxwellian ion distributions.

Please return this document via e-mail attachment to jrobinson@pppl.gov and jsavino@pppl.gov.

Please e-mail questions or comments to the organizers listed above.