

**National Spherical Torus Experiment
Program Advisory Committee
21st Meeting**

**Princeton Plasma Physics Laboratory
Conference Room LSB-318
January 17-19, 2007**

CHARGE & AGENDA

The signing of the ITER agreement on November 21st by the seven participating countries, including the U.S., signals an unprecedented commitment of the U.S. government to the development of fusion energy. DOE Under Secretary Orbach and DOE Secretary Bodman have indicated further that the U.S. should position itself to be a leader in fusion development. The opportunities for NSTX to make key contributions to the U.S. and world fusion programs have never been greater. These opportunities include using the unique physics properties of NSTX to address key issues for ITER in the context of the U.S. Burning Plasma Organization and the International Tokamak Physics Activities; developing understanding of the physics properties of the Spherical Torus leading to a compact Component Test Facility and ultimately Demo power plant; and contributing to the fundamental predictive understanding of toroidal fusion plasmas generally.

NSTX, working with OFES, has continued to strengthen and renew its national research team, and has continued to implement and operate critical new capabilities. Notable examples include for FY 2007 the planned installation and commissioning of an interim poloidal rotation diagnostic using charge-exchange recombination spectroscopy, expanded Motional Stark Emission channels for improved current profile resolution, calibration and fuller implementation of the unique tangential microwave scattering system for highly localized high-k turbulence measurements, wider angle view and local gas-puffing for the EBW radiometer for H-mode coupling study, faster processors for the real time plasma control system, the preparation for direct fast ion measurement based on D-alpha spectroscopy, upgraded capability in reflectometry, an improved lithium coating system based on the test results of FY 2006 combined with improved divertor tile bakeout, and an improved support of OH-TF coils to reduce intrinsic n=1 error field.

In view of these considerations, I ask the NSTX Program Advisory Committee to address the following questions, taking into account budgetary constraints:

- 1) Does the '07 research plan provide the correct balance and focus to optimize the contributions of NSTX in the areas of ST concept development, ITER support, and fundamental toroidal physics?
- 2) Do the proposed facility and diagnostics upgrades for FY 2008 – 2009 position NSTX to maximize its contributions?
- 3) Do the proposed research plans for FY 2008 – 2009 maximize the contributions from NSTX?

Wednesday, January 17, 2007

1:00 Coffee & Cookies, PAC Executive Session
1:15 Rob Goldston Welcome and Charge to the PAC
1:20 Steve Eckstrand Comments from DOE
1:25 Jim Van Dam New PAC members, Agenda and Plan of Meeting
1:35 **Martin Peng** **Draft Program Plan and PAC-19th Meeting Action Items**
2:15 **Roger Raman** **FY06 Campaign Accomplishments**
2:50 Coffee
3:05 **Masa Ono** **Facility and Diagnostic Plans, 5-Year Plan Preparation, and NSTX/NCSX Relationship**
4:05 **Kevin Tritz** (Progress and Plans on) **Transport and Turbulence**
4:45 Jim Van Dam PAC Executive Session
6:00 Adjourn
6:30 PAC Reception & Dinner The Prospect House, Princeton University

Thursday, January 18, 2007

8:00 Coffee & Donuts
8:30 Jim VanDam Feedback and Questions
8:45 **Steve Sabbagh** (Progress and Plans on) **Macro-stability**
9:15 **Nikolai Gorelenkov** (Progress and Plans on) **Super-Alfvénic Ion Physics**
9:45 Coffee
10:00 **Joel Hosea** (Progress and Plans on) **EBW & HHFW**
10:50 **Roger Raman** (Progress and Plans on) **Solenoid-Free Start-up**
11:20 **Rajesh Maingi** (Progress and Plans on) **Integrated Scenario Development**
12:00 Lunch and PAC Executive Session
2:00 **Vlad Soukhanovski** (Progress and Plans on) **Boundary Physics**
2:45 **Dave Gates** **Run Plan for FY07**
3:30 Coffee & PAC Executive Session
6:00 Adjourn

Friday, January 19, 2007

8:30 Coffee & Donuts
8:40 Jim VanDam Feedback and Questions
8:55 PAC Executive Session
(10:00 Coffee)
12:00 Jim VanDam Debriefing
12:30 Lunch
1:30 Adjourn