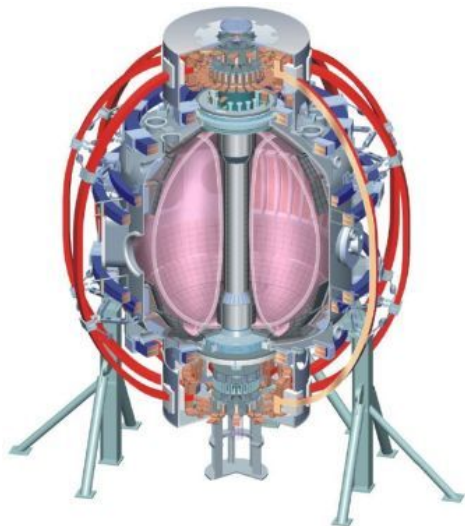


NSTX Program Update

J. Menard, S. Kaye

**NSTX Team Meeting
B318, PPPL
December 21, 2009**



College W&M
 Colorado Sch Mines
 Columbia U
 CompX
 General Atomics
 INEL
 Johns Hopkins U
 LANL
 LLNL
 Lodestar
 MIT
 Nova Photonics
 New York U
 Old Dominion U
 ORNL
 PPPL
 PSI
 Princeton U
 Purdue U
 SNL
 Think Tank, Inc.
 UC Davis
 UC Irvine
 UCLA
 UCSD
 U Colorado
 U Illinois
 U Maryland
 U Rochester
 U Washington
 U Wisconsin

Culham Sci Ctr
 U St. Andrews
 York U
 Chubu U
 Fukui U
 Hiroshima U
 Hyogo U
 Kyoto U
 Kyushu U
 Kyushu Tokai U
 NIFS
 Niigata U
 U Tokyo
 JAEA
 Hebrew U
 Ioffe Inst
 RRC Kurchatov Inst
 TRINITI
 KBSI
 KAIST
 POSTECH
 ASIPP
 ENEA, Frascati
 CEA, Cadarache
 IPP, Jülich
 IPP, Garching
 ASCR, Czech Rep
 U Quebec

NSTX Program Update Topics

- Research forum outcome
- Laboratory collaboration solicitation
- Upcoming meetings

Successful research forum held in early December

- 156 proposal ideas requesting 168 run days
 - 50% increase from FY2009 (106 ideas, 112 run days)

TSG	# of XPs proposed	Run days requested
Advanced Scenarios and Control	20	21.5
Boundary Physics	33	33
Lithium Research	21	19.1
Macroscopic Stability	23	23.5
Solenoid-free Start-up and Ramp-up	4	10
Transport and Turbulence	27	33.7
Wave-Particle Interactions	28	27.1
ITER high priority	-	-
Total	156	167.9

- Allocate remaining run-time after mid-run assessment considering:
 - Progress to date
 - Achievement of Milestones, ITPA
 - New developments

- Subsequent discussions/developments since forum:
 - ITER = 5 Priority 1 run days assigned emphasizing edge/ELM control
 - Input from IO will be sought on additional needs, relative priorities
 - 2 Priority 1 run days from CC&E for cross-TSG “LLD physics survey”

National laboratory collaboration RoDs submitted to NSTX/PPPL, proposals submitted to OFES

- OFES decisions expected by January 15, 2010
- Research proposals submitted by ORNL, LLNL, LANL
 - ORNL: boundary physics, HHFW experiment and modeling
 - LLNL: divertor experiment/diagnosis/modeling, also CHI modeling
 - LANL: CHI modeling, impurity transport, divertor sheaths, dust motion
- Proposals map to program letter high priorities (partial list):
 - Understanding the impact and operation of the LLD
 - H-mode pedestal structure, SOL transport, divertor power exhaust
 - Utilization of the upgraded HHFW system
 - Supporting R&D for long-pulse pumping, power-handling, and control capabilities needed for the proposed NSTX Upgrade

Upcoming meetings / events

- NSTX PAC-27 – Feb 3-5 (Wed-Fri) 2010
 - Charge letter, assignments for speakers, agenda in preparation
 - Likely emphases: NSTX contributions to ReNeW, preparation for upgrades
 - Dry-runs will be held mid-January
- NSTX FY2012 Research Milestone Ideas from TSG leaders
 - Meetings/discussions to be held with TSG leaders early January 2010
- OFES Budget Planning Meeting
 - Very likely during first two weeks of March
- 23rd IAEA Fusion Energy Conf.: 11-16 Oct 2010, Korea
 - Two page synopsis + abstract will be due to U.S. Paper Selection Committee on **February 8, 2010**
 - Synopsis + abstracts due to IAEA FEC: 01 March – 02 April 2010

Stan Kaye coordinating development of IAEA synopsis ideas

(note that NSTX had 16 IAEA contributions accepted at 2008 FEC)

13 proposal ideas identified and committed to thus far

1. R. Raman NSTX Overview
2. S. Kaye L-H Threshold Studies
3. S. Sabbagh RWM results
4. R. Maingi Modification of edge profiles and ELM stability with Li
5. A. Sontag Pedestal characteristics/stability of small ELM regimes
6. J.W. Ahn Divertor heat/particle flux profile splitting with 3D fields
7. J. Canik ELM pace making (or Divertor Modeling)
8. J.K. Park Plasma response to 3D fields at low and high beta
9. R. Buttery EF impact on NTM in DIII-D and NSTX
10. S. Gerhardt Advanced Scenarios at high betat and betap
11. K.C Lee H-mode transitions on NSTX by the gyro-center shift
12. B. Nelson CHI Results
13. J. Menard Prospects for a burning plasma ST (BPST)

Additional IAEA synopsis ideas need to be developed

These are NOT committed to (yet) Talk to Stan if you have more/other ideas...

14. E. Koleman	Vertical stability, plasma control
15. M. Podesta	FIDA/fast-ion physics from *AE and/or HHFW
16. C. Skinner	Dust/retention with Li and for ITER
17. V. Soukhanovskii	Snowflake divertor research
18. E. Fredrickson	TAE avalanches and modeling/benchmarking
19. Kugel/Kaita/Bell	Lithium results
20. L. Delgado-Aparicio	Particle/impurity transport
21. W. Solomon	Momentum pinch vs collisionality
22. Hosea/Taylor/Phillips	HHFW progress

- **Possible post-deadlines on high-k, BES, LLD results**
- **Should aim to submit ~25 synopses to U.S. selection committee**

Remember: South Korea is delightful in October!

ITPA status and plans

- Stan Kaye recently participated in ITPA joint experiment planning meeting in Korea
 - Represented NSTX, Transport and Confinement group
 - Presentations well received (*bonus: Stan enjoyed 30+hrs of travel*)

Tentative locations/dates of future ITPA meetings (info courtesy Rich Hawryluk)

• MHD	Toki, JA	March 8-12
• Transport and Confinement	Culham, UK	March 22- 25
• Pedestal	Naka, JA	April 21-23
• Integrated Operating Scenarios	Princeton, NJ	April 19-23 tentative
• Diagnostics	Oak Ridge, TN	May 10-15
• Transport and Confinement	Korea ?	October 18-22
• Integrated Operating Scenarios	Korea ?	October 18-22
• Diagnostics	Japan ?	October 18-22