



# Boundary Physics ET Discussion Plans

**R. Kaita**

**NSTX Research Forum**

**September 22, 2004**

# Focus to remain on critical boundary physics issues

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- **Effort to continue in key boundary physics areas**
  - **Characterization of edge plasma and scrapeoff region**
  - **Fueling and recycling**
  - **Plasma-surface interactions and surface physics**
- **New capabilities to be developed and exploited**
  - **Supersonic gas injection**
  - **Pellet injection**
  - **Surface coating and conditioning techniques**
  - **Imaging diagnostics**

# Boundary Physics ET to also cover new areas



- **Additional focus to be on stability of edge plasmas and effect on confinement**
  - **H-mode investigations**
  - **ELM physics**
- **Studies needed to support decision point in FY06 on future capabilities for particle control and power handling**
  - **Cryopump issues**
  - **Flowing liquid lithium divertor issues**

# Agenda Boundary Physics ET, Breakout Session

Thursday, September 23, 2004, 1:30-6:00pm, B-252



1:30-1:35pm Run-Time Allocation and Comments on Particle Control Options - R. Kaita

Characterization of edge plasma and scrapeoff region

1:35-1:50pm Some Fundamental Boundary Physics Issues - J. Boedo

1:50-2:00pm Power Balance in Single and Double Null Plasmas - R. Mainigi

2:00-2:10pm Systematic Study of NSTX Divertor Regimes Including Detachment  
- V. Soukhanovskii

2:10-2:20pm Simple Plasmas for Edge Transport and Turbulence Code - V. Soukhanovskii

2:20-2:30pm Boundary Measurement by FIReTIP - K. C. Lee

2:30-2:40pm Tangential 2-D Edge Imaging - R. Maqueda

Fueling and recycling

2:40-2:50pm Characterization of Lithium Pellet Injection - H. Kugel

2:50-3:00pm Supersonic Gas Jet Fueling of NSTX Plasmas - V. Soukhanovskii

3:00-3:10pm CT Injector as a Tool for Near-term Enhancement of NSTX Plasma Operations  
- R. Raman

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3:10-3:20pm     **BREAK**

H-mode investigations

3:20-3:30pm     **A Comprehensive Study of the Slow Edge  $E(r)$  Precursor to Some H-Modes in NSTX - C. Bush**

3:30-3:40pm     **Edge Flow Changes with Magnetic Configuration and Relationship to H-Mode Power Threshold - T. Biewer**

3:40-3:50pm     **Anti-CHI for Density Control in a H-Mode Discharge - R. Raman**

3:50-4:00pm     **Suppression of ELMs Using Active EF/RWM Control Coil Set - S. Kaye**

4:00-4:10pm     **ELM Mitigation Through Plasma Shaping Using RTEFIT to Control Triangularity - S. Kaye**

4:10-4:20pm     **Characterization of NSTX Edge Pedestal and Comparison with DIII-D and MAST - R. Mainigi**

4:20-4:30pm     **H-Mode Pedestal Comparison Experiments between NSTX and DIII-D - T. Osborne (presented by M. Schaffer)**

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## Special topics

- 4:30-4:40pm      **Study of Dust Dynamics in the NSTX - S. Krasheninnikov (presented by A. Pigarov)**
- 4:40-4:50pm      **Operations/Flows/Impurities/Molecules in NSTX - A. Pigarov**
- ELM physics**
- 4:50-5:00pm      **Stability of Type I, IVIII, and Type V ELMs - R. Mainigi**
- 5:00-5:10pm      **Investigation of ELM Behavior and Scaling in NSTX - K. Tritz**
- 5:10-5:20pm      **ELM Similarity Experiments Between ASDEX-U and NSTX - P. Ridha (presented by J. Menard)**
- 5:20-6:00pm      **Discussion and Prioritization for Allotted Run Time - J. Boedo**