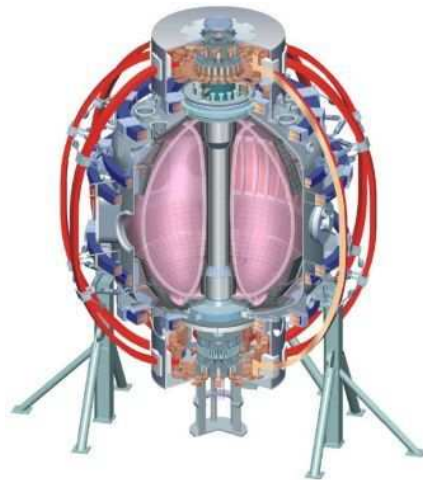


Proposals for WPI XPs (FY2011-12)

A. Bortolon, UCI

College W&M
 Colorado Sch Mines
 Columbia U
 CompX
 General Atomics
 INL
 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



WPI-TG meeting
B252, PPPL
February 4th, 2011



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

Tangential FIDA commissioning XMP

Goal: to characterize the new t-FIDA diagnostic capabilities on controlled experimental conditions

- Low density, L-mode, H-mode
 - Test different NB injection schemes (single, multiple beams, injection different energies)
 - Beam modulation to evaluate background subtraction accuracy
- Tangential and Vertical FIDA provide complementary information on Fast Ion distribution function
 - Important to address phenomena that affect the FI distribution function in phase space (RF coupling, CD, ...)
 - Optimal FIDA measurement may require specific scenario: ELM free, Low density, Low impurity (C, O), NBI modulation

Effect of HF modes on NBI current drive efficiency

Goal: to characterize the interplay between energetic particles, HF modes (TAE/EPM) and NBI current drive efficiency, in high non inductive fraction discharges

- extends XP-905 (D. Darrow et al.): *Current Profile Modifications and Fast Ion Loss from BAAEs/EPMs*
- measure the changes in the current profile (MSE) induced by HF bursting modes
- correlate with redistribution in phase space measured by vertical and tangential FIDA
- provide a complete dataset for validation of CD models in view of NSTX-U

Effect of low frequency MHD on Fast Ion confinement

Goal (1): to understand how continuous LF MHD modes (tearing, kink) redistribute fast ion in real and phase space

Goal (2): to validate ***SPIRAL*** and ***FIDASIM*** codes on the relatively simple case of LF MHD modes

- Analysis work in progress on FY2010 data (TTF2011)
- Perturbed distribution function from SPIRAL used in FIDASIM to compare with measured FIDA spectra.
- Need for experimental radial structure (reflectometer coverage)
- Acquire tangential FIDA measurements

Contributes to Milestone **IR(12-2)**: *Assess predictive capability of mode-induced fast-ion transport*

Effect of induced 3D fields on Fast Ion confinement

Goal: To investigate how externally imposed 3D fields may affect the fast ion population

- No clear evidence during FY2010 run
- In past campaign 3D fields used for ELM pacing/triggering, high density: poor FIDA signal, background light contamination...
- target a FIDA friendly scenario: MHD/ELM free, low density, L-mode

Contributes to **ITPA EP-6**: *Fast ion losses and associated heat load from edge perturbations (ELMs and RMPs)*