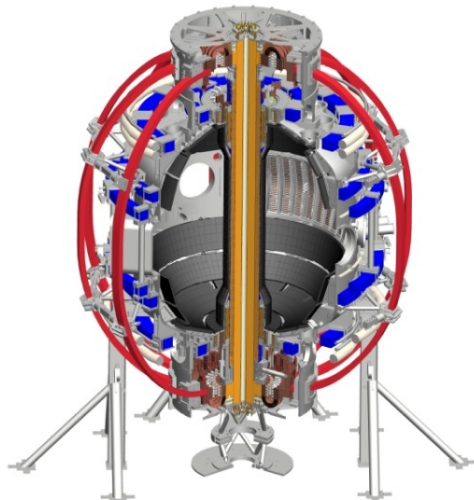


MS 5 year plan writing and research progress

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For NSTX-U Team

B318, PPPL
September 16, 2012

*Coll of Wm & Mary
Columbia U
CompX
General Atomics
FIU
INL
Johns Hopkins U
LANL
LLNL
Lodestar
MIT
Lehigh U
Nova Photonics
ORNL
PPPL
Princeton U
Purdue U
SNL
Think Tank, Inc.
UC Davis
UC Irvine
UCLA
UCSD
U Colorado
U Illinois
U Maryland
U Rochester
U Tennessee
U Tulsa
U Washington
U Wisconsin
X Science LLC*



*Culham Sci Ctr
York U
Chubu U
Fukui U
Hiroshima U
Hyogo U
Kyoto U
Kyushu U
Kyushu Tokai U
NIFS
Niigata U
U Tokyo
JAEA
Inst for Nucl Res, Kiev
Ioffe Inst
TRINITY
Chonbuk Natl U
NFRI
KAIST
POSTECH
Seoul Natl U
ASIPP
CIEMAT
FOM Inst DIFFER
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep*

Progress on MS write-up

2.1. Overview of goals and plans

2.1.1. Establish predictive capability for the sustained stability... : TBD (will be the last)

2.1.2. Thrust and goals by topical area

2.1.2.1. Thrust1 – Stability and Control : Draft is finished by Berkery

2.1.2.2. Thrust2 – 3D : Draft will be done by Sep. 26 by Park

2.1.2.3. Thrust3 – Disruption : Draft will be requested by Sep.30 to Gerhardt and Raman

2.2. Research Plans

2.2.1. Thrust 1 – Stability and Control : Draft is finished by Berkery

2.2.2. Thrust 2 – 3D : Draft will be compiled by Sep. 30 by Park

2.2.3. Thrust 3 – Disruption : Draft will be compiled by Sep. 30 to Gerhardt and Raman

2.2.4. Year 5 of NSTX-U Operation : Draft will be done by Park and Berkery by Oct. 2

2.3 Theory and Simulation : Draft for each subsection will be requested by Sep. 30

2.4 Non-axisymmetric Control Coil (NCC) : Analysis is now active (Next slide)

Research progress on NCC

- Basis (Sabbagh, Gerhardt)

**/DragNDrop/Five_Year_Plans/2014_2018/design_studies/ncc*

- 4 coil geometries are selected, uploaded*
- 36 NSTX-U equilibria ($\beta_N=2\sim 8$) are selected, uploaded; have kinetic data on TRANSP tree

- Progress (Park)

- 4 coil geometries are implemented to IPEC
- $n=1-6$ stability for 36 equilibria tested by DCON
- 8 config. for $n=3$, six for $n=4$, four for $n=6$ perturbations to one NSTX-U equilibrium ($\beta_N=3.5$) have been calculated by IPEC
- NTV calculations for $n=3,4,6$ are underway
- NTV calculations for rotation will be completed by Sep. 23

- NSTX-U active RWM control calculations begun (Sabbagh, Bialek)

- Using NSTX-U conducting structure and NSTX-U equilibria
- $n = 1$ proportional gain using 6 RWM coils completed; NCC coil calculations now running

- Meeting next week to report progress and determine writing plan?

