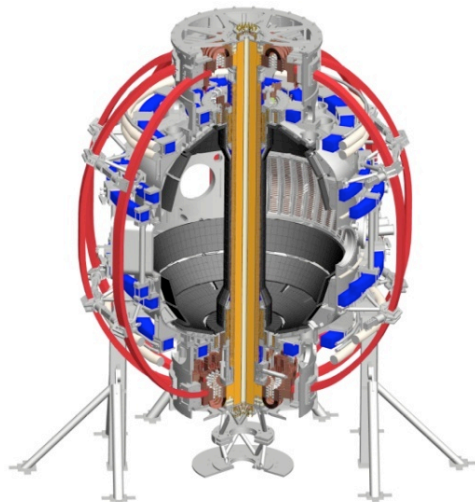# NSTX-U Five Year Plan Chapter 4 Status

Vlad Soukhanovskii
Ahmed Diallo

for the NSTX-U Boundary Physics Group

NSTX-U Meeting
PPPL B318
17 September 2012

Coll of Wm & Mary
Columbia U
CompX
General Atomics
FIU
INL
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TRINITI
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KAIST
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Seoul Natl U
ASIPP
CIEMAT
FOM Inst DIFFER
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep

NSTX-U Five Year Plan Boundary Physics Section: Progress to date

- Discussed outline, timeline, and authorship of sub-chapters – 08/01/2012

- Collected and implemented initial comments – 08/02/2012

- Requested comments on revised outline and timeline by 8/31/12
  - Received several good comments and suggested additions

- "Introduction" not yet complete
  - Authors: Kaye, Maingi, Diallo, Zweben, Soukhanovskii, Canik
  - Expect progress by mid-October

- "Overview of goals and plans" not yet completed
  - Authors: Soukhanovskii, Diallo, Maingi
  - Expect first draft by mid-October

NSTX-U Five Year Plan Boundary Physics Section: Outstanding tasks and work in progress

- Several Boundary Physics sub-chapters are to include modeling that is still in progress, e.g.

  - Divertor physics (e.g., snowflake divertor, radiative divertor with impurity seeding, lithium radiation modeling)

  - Particle control (e.g., cryo-pump design and performance modeling)

- Expect progress by after APS DPP meeting (early November 2012)

  - Several APS presentations include the modeling

    - J. Canik, PP8.00030 : Physics design of a cryo-pumping system for NSTX-U

    - E. T. Meier, PP8.00028 : UEDGE modeling of NSTX and NSTX-U snowflake divertor configurations

    - T. D. Rognlien, PP8.00031 : A mechanism for large divertor plasma energy loss via lithium radiation in tokamaks