# ELM-induced fueling effects
on the pedestal evolution

A. Diallo, D. Battaglia, F. Scotti, V. Soukhanovskii, J. Boedo, et al.

NSTX-U Pedestal NSTX-U ROF
February 24, 2015

Coll of Wm & Mary
Columbia U
CompX
General Atomics
FIU
INL
Johns Hopkins U
LANL
LLNL
Lodestar
MIT
Lehigh U
Nova Photonics
Old Dominion
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
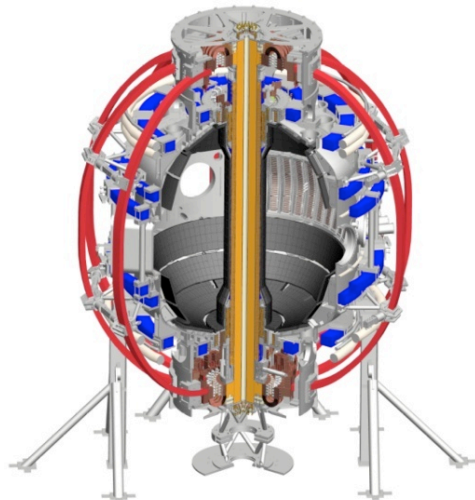
Culham Sci Ctr
York U
Chubu U
Fukui U
Hiroshima U
Hyogo U
Kyoto U
Kyushu U
Kyushu Tokai U
NIFS
Niigata U
U Tokyo
JAEA
Inst for Nucl Res, Kiev
Ioffe Inst
TRINITI
Chonbuk Natl U
NFRI
KAIST
POSTECH
Seoul Natl U
ASIPP
CIEMAT
FOM Inst DIFFER
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep

Outgassing effects on the pedestal recovery rate during the inter-ELM phase

- Test Pigarov JNM 2014 hypothesis that the pedestal recovery rate is strongly impacted by the neutral reflux produced by ELMs

- JET showed that increased outgassing by the walls results in an increase of the ELM frequency [De La Luna IAEA 2014]

- Goals/Implications
  - Assess the wall physics processes in the pedestal recovery
  - Could provide the means to control the pedestal evolution

Experimental Method

- ## Start with a LSN intrinsic ELMy discharge
  - Vary the fuelling rate to impact the pedestal recovery rate
  - Monitor the carbon influx between ELMs
  - Investigate the contribution between the wall vs divertor sources
    - Vary/shift the outer and/or inner gaps in steps TBD
    - Similarly, perform a downward shift of the plasma (in steps TBD)

- ## Repeat above with Li/B granule injector and RMP to trigger ELMs
  - Attempt to time triggered ELMs with MPTS pulses (?)

Useful run time = 1 day in Lithiated and Boronized wall conditions