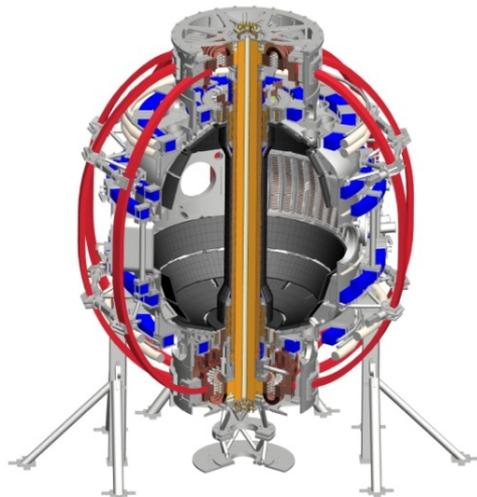


# SFSU Pre-forum meeting

**Dennis Mueller**

**Pre-forum meeting  
1-29-14**

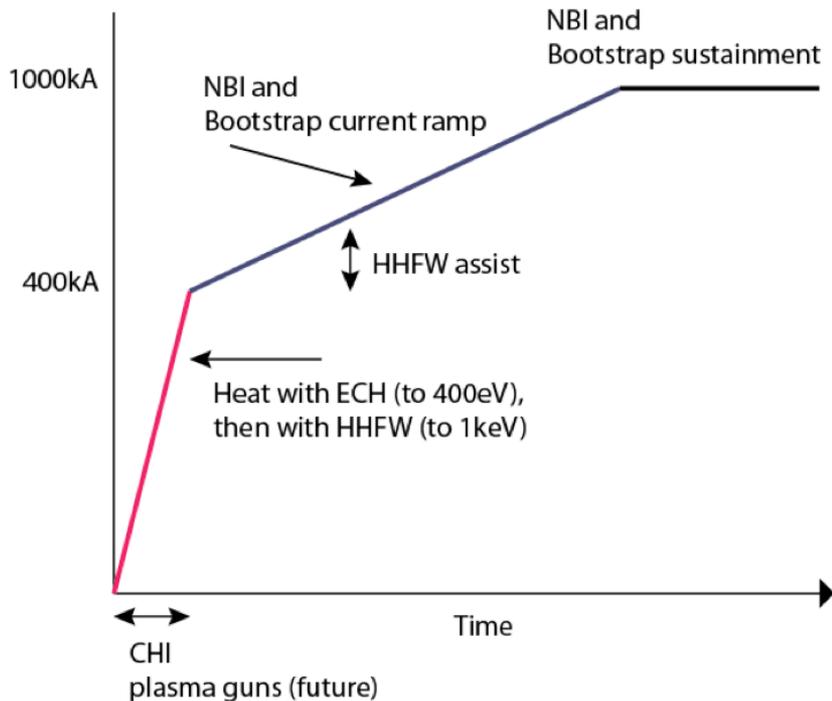
*Coll of Wm & Mary  
Columbia U  
CompX  
General Atomics  
FIU  
INL  
Johns Hopkins U  
LANL  
LLNL  
Lodestar  
MIT  
Lehigh U  
Nova Photonics  
ORNL  
PPPL  
Princeton U  
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Think Tank, Inc.  
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UCLA  
UCSD  
U Colorado  
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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  
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Inst for Nucl Res, Kiev  
Ioffe Inst  
TRINITI  
Chonbuk Natl U  
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KAIST  
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Seoul Natl U  
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CIEMAT  
FOM Inst DIFFER  
ENEA, Frascati  
CEA, Cadarache  
IPP, Jülich  
IPP, Garching  
ASCR, Czech Rep*

# NSTX-U non-solenoid strategy

## NSTX-U non-solenoid scenario



## Possible XP topics include

- CHI XMP (basic function)
- CHI Initiation
- CHI plus solenoid
- HHFW heating, bootstrap and CD of low  $I_p$  plasmas
- NBI bootstrap and current over drive of low  $I_p$  plasmas with and without HHFW heating
- HHFW heating of CHI and CHI plus solenoid plasmas
- NBI plus bootstrap sustainment

- Goals
- Estimated schedule/time requirements
- XP authors

# SFSU GOALS

1. Commission CHI hardware
  2. Recover CHI plasma initiation
    - a. Determine proper sign of PF2, PF1a polarities
    - b. Goal 200 kA in 2015: Note:  $V_{\text{CHI}} < 1.65 \text{ kV}$ ,  $B_{\text{TF}} < 0.65 \text{ T}$
  3. CHI plus solenoid
    - a. Demonstrate ramp-up of high current CHI start-up plasma
  4. HHFW of inductively formed low  $I_p$  plasma
    - a. Demonstrate heating (and current drive) for  $I_p \sim 300 \text{ kA}$
  5. HHFW of CHI formed plasma
    - a. Can HHFW heat low  $T_e$  (30 eV) CHI plasma
    - b. Can HHFW couple to CHI plus inductive plasma (control/coupling issues?)
  6. NBI overdrive of low  $I_p$  (300 kA) to 600 kA (or more)
    - a. With  $T_e \sim 1 \text{ keV}$  HHFW heating
    - b. Without HHFW (low  $T_e$  ( $\sim 300 \text{ eV}$ ) plasma)
  7. Sustainment of NBI overdrive plasma with NBI
- Note: 4. and 5. together have implications for ECH upgrade requirement  
7. requires 6. a or b was successful

## Table of XMP and XPs for first 8 weeks +

GOAL	AUTHOR	EARLY RUN WEEK	DURATION
CHI hardware XMP	Raman	4 <sup>th</sup>	1 day
CHI Initiation	Raman	8 <sup>th</sup>	1day
CHI Plus solenoid	B. Nelson	8 <sup>th</sup>	1day
HHFW of low Ip	G. Taylor	8 <sup>th</sup>	2 day
NBI overdrive (w/ wo HHFW)	F. Poli With ASC	12 <sup>th</sup> (Early look week 5)	1day
HHFW of CHI	G. Taylor	12 <sup>th</sup>	1 day
NBI sustainment	F. Poli With ASC	12 <sup>th</sup> (Early look week 5)	1day
Other?			