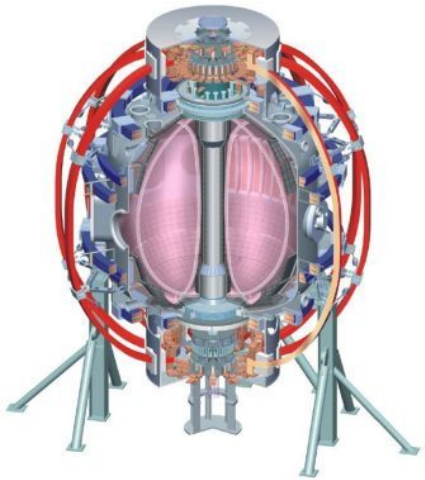
CHI Gap Shields

SPG, HK, RR

Columbia U
CompX
General Atomics
FIU
INL
Johns Hopkins U
LANL
LLNL
Lodestar
MIT
Nova Photonics
New York U
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 Washington
U Wisconsin



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
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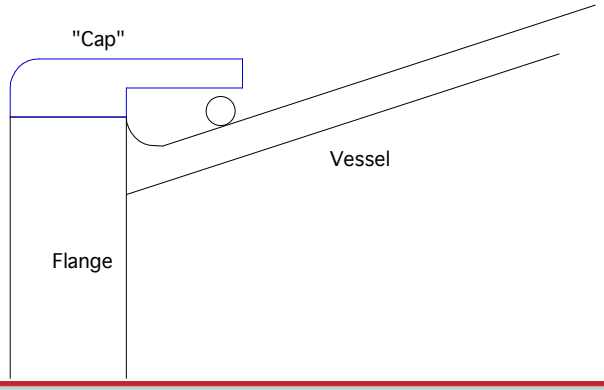
Ioffe Inst
RRC Kurchatov Inst
TRINITI
NFRI
KAIST
POSTECH
ASIPP
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep

Desire to Improve the Power Handling Capability of the CHI Gap

- Issue: Plasma & heat entering the CHI gap has been known to
  - degrade discharge performance due to heat flux on SS, and
  - damage diagnostics in the CHI gap,
- Problem may be more severe in NSTX-Upgrade, where the horizontal inner target is more narrow.
- Goal: Install armor on outboard side of CHI gap.
  - Graphite is not considered a plausible candidate due to high temperature bake-out requirement.
- Provides 2 benefits
  - For cases with OSP on OBD bull-nose tiles, armor increases tolerance to transient inboard motion of the SP.
  - For cases with OSP in the inner horizontal target, armor improves power handling of the far(ther) SOL heat flux.
- Not planning for this armor to be a primary, “steady-state” power handling component.
- Have already identified candidate concepts, and are working with engineering to implement.

Concept for Moly. Tile



1: Hole for 1/4-20 stud and nut
2: Coutersink diamer for appropriate socket
3: Extend hole toroidally for thermal expansion?

CHI Gap Armor Concept
Rev. 2
01/10/2011
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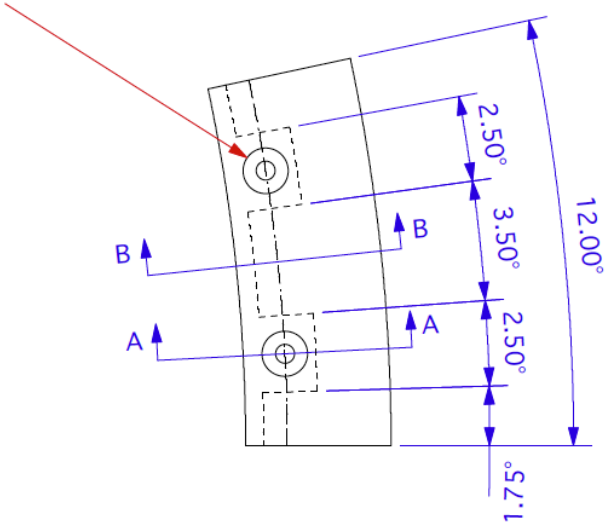
Part A: Moly Tile



Part B: Grafoil Spacer