

Status of Qweak Target

■ Loop Components:

- Heat Exchangers
- Heater
- Pump
- Cell / Cell Block
- Instrumentation

■ Macro Components

- Scattering chamber
- Top hat (IV)
- Motion system
- Cryostats
- Stand
- Work Platform
- Gas handling system

Jim Dunne

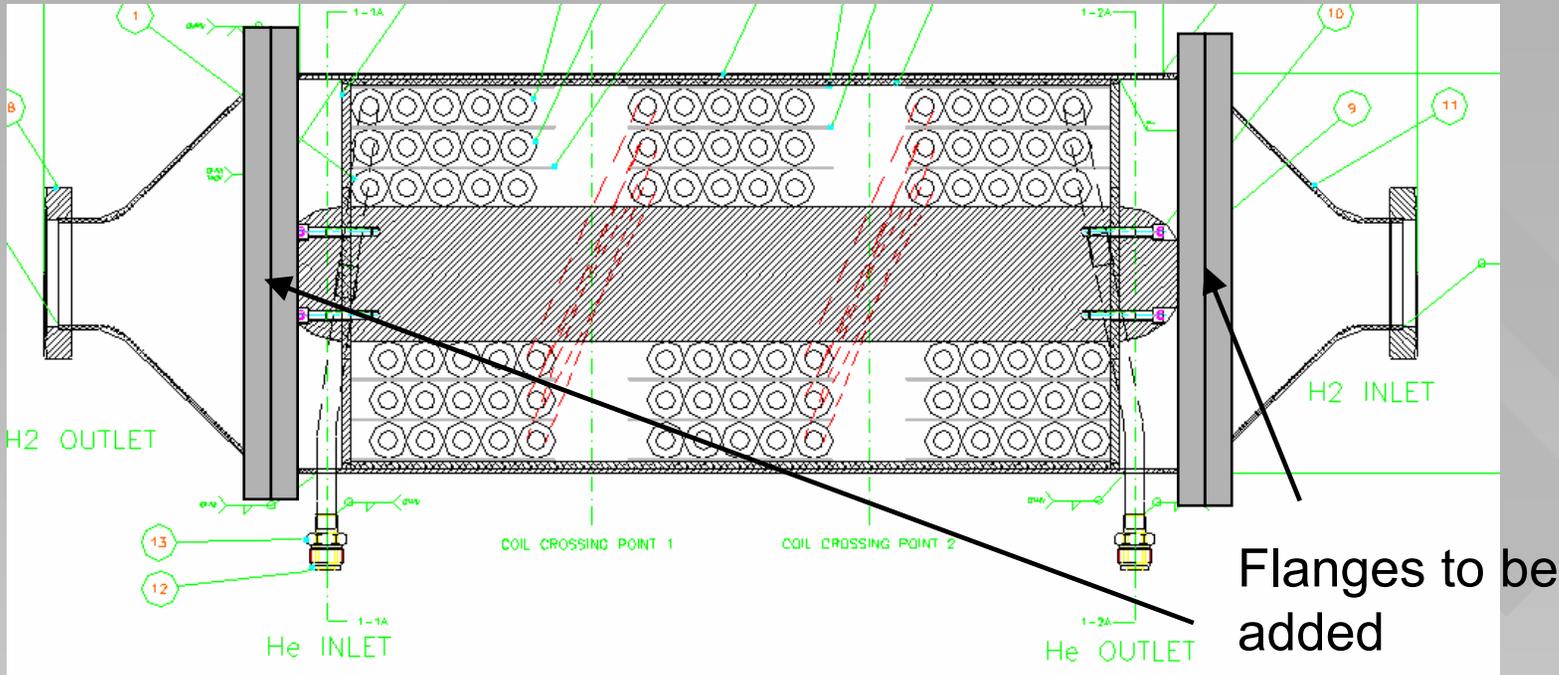
Mississippi State University



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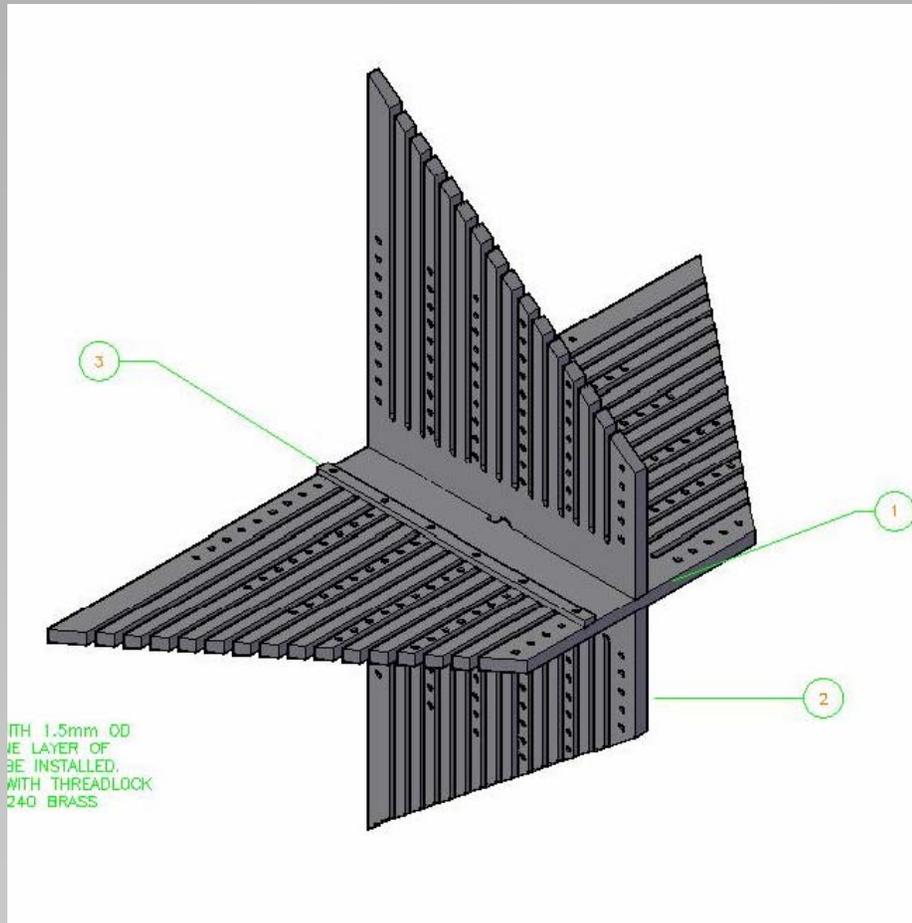


Heat Exchanger



- Have 10" pipe, flanges
- Copper finned tube quote possibly next week.
- Need mandrel and cone pieces.

High Power Heater



- Nichrome wire
 - 0.057" diameter
 - 0.2027 Ω /ft
 - 122 ft total length
 - 4 windings in parallel to give a resistance 1.5 Ω

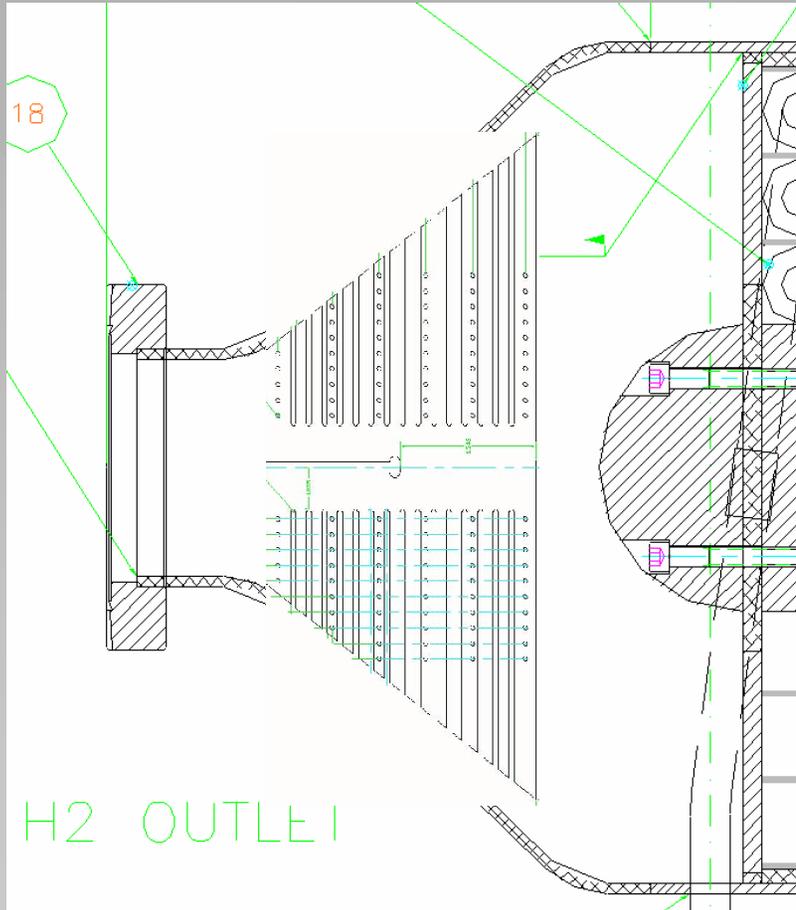
G10 boards exist along with spacers, ready to be wound.



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High Power Heater



Heater will live in the downstream cone piece of the HX.

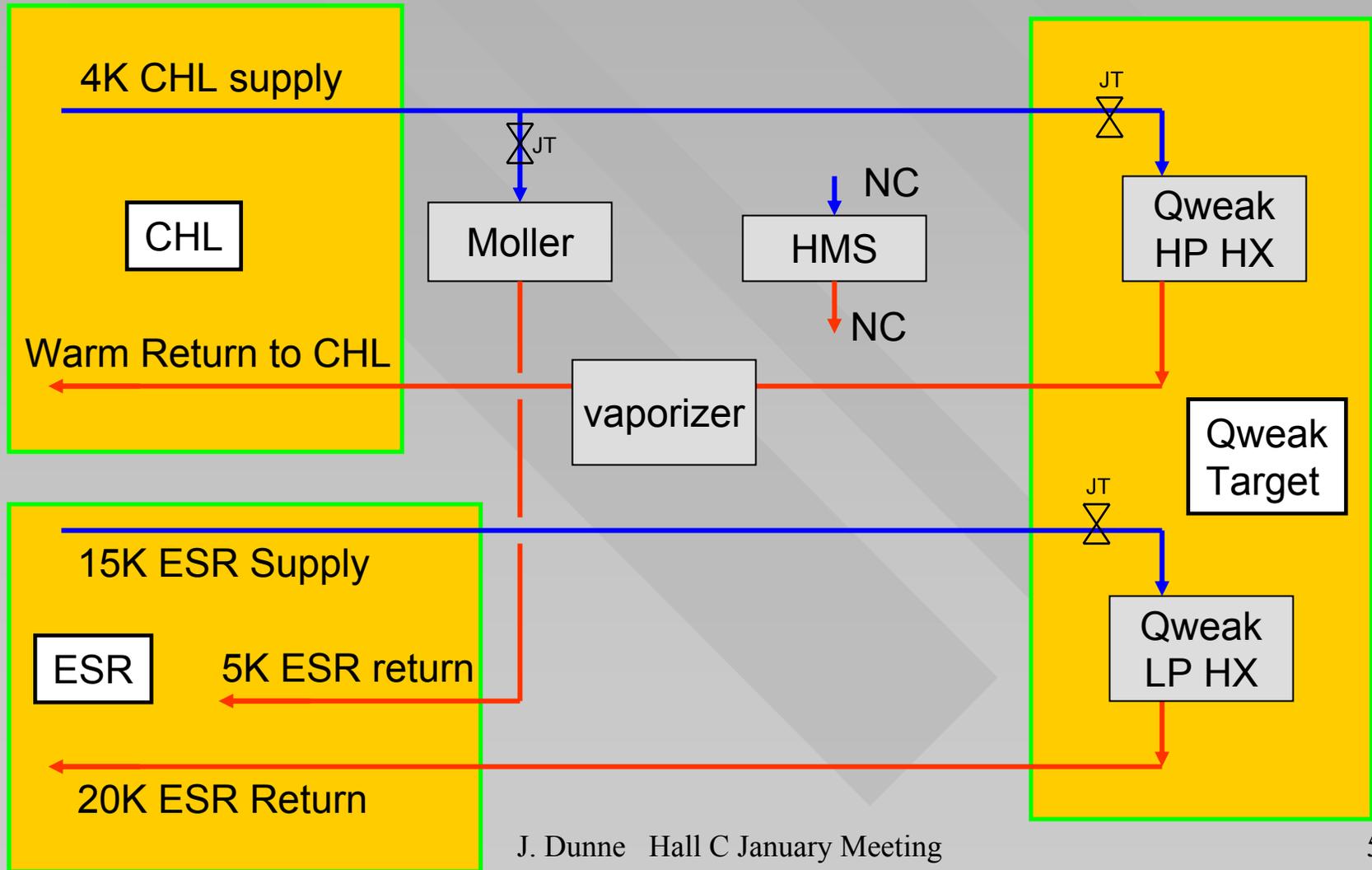


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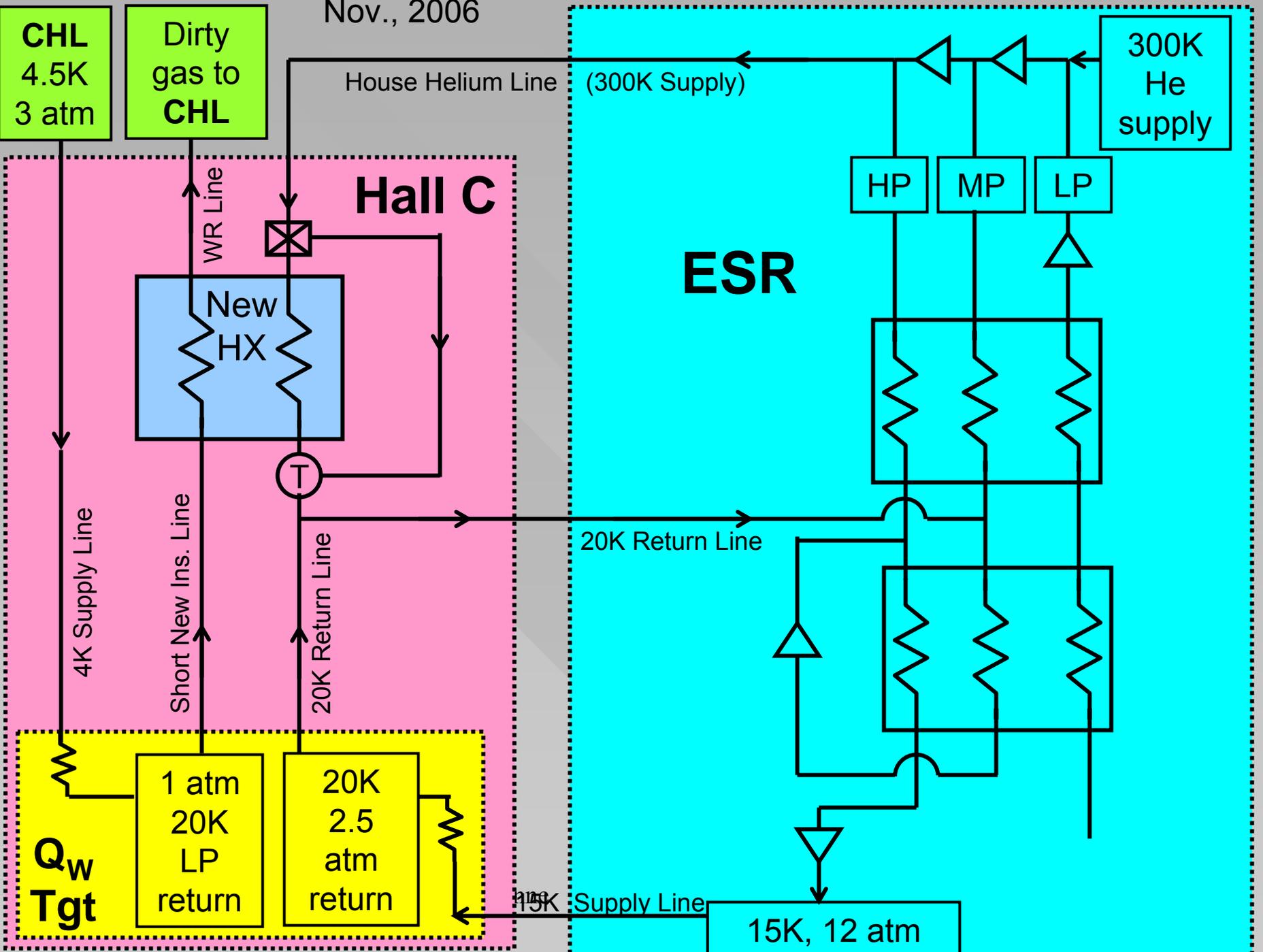


Old Qweak Cooling Solution

Nov., 2004

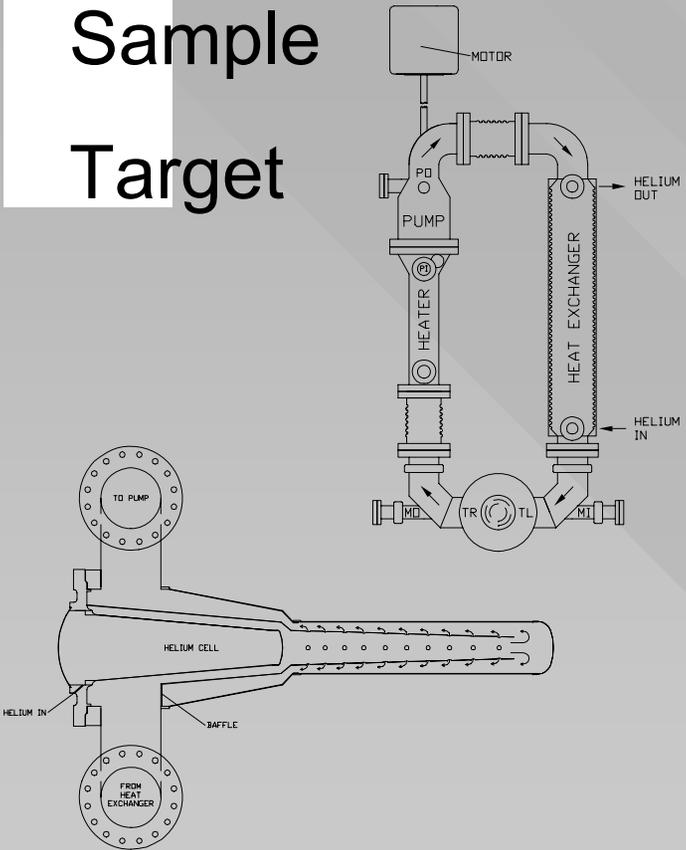


Nov., 2006



Cell/Cell Block

Sample Target



G0 Target

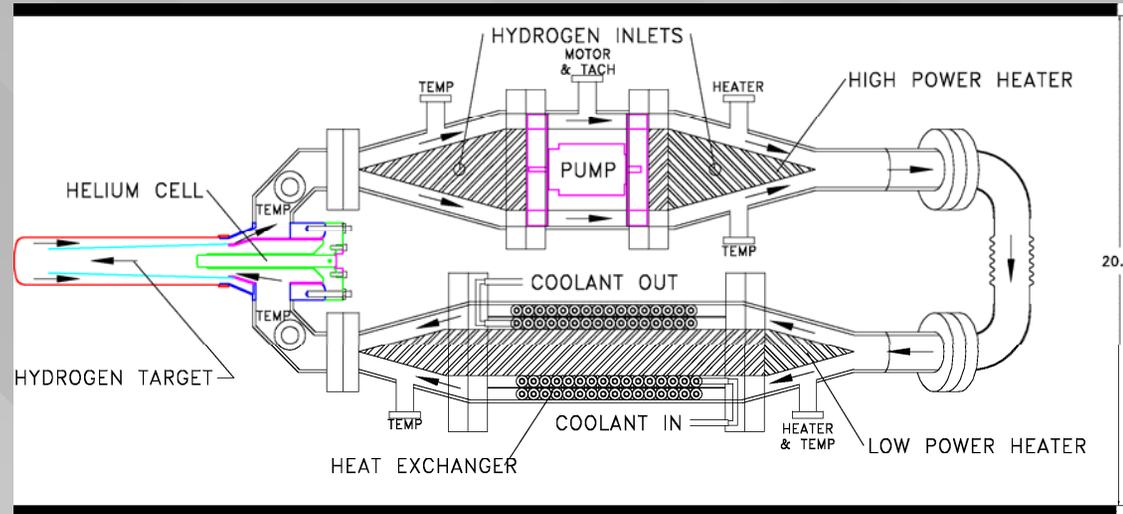


Figure 11.9: Schematic view of the target tray and hydrogen flow assembly.



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Cell Design

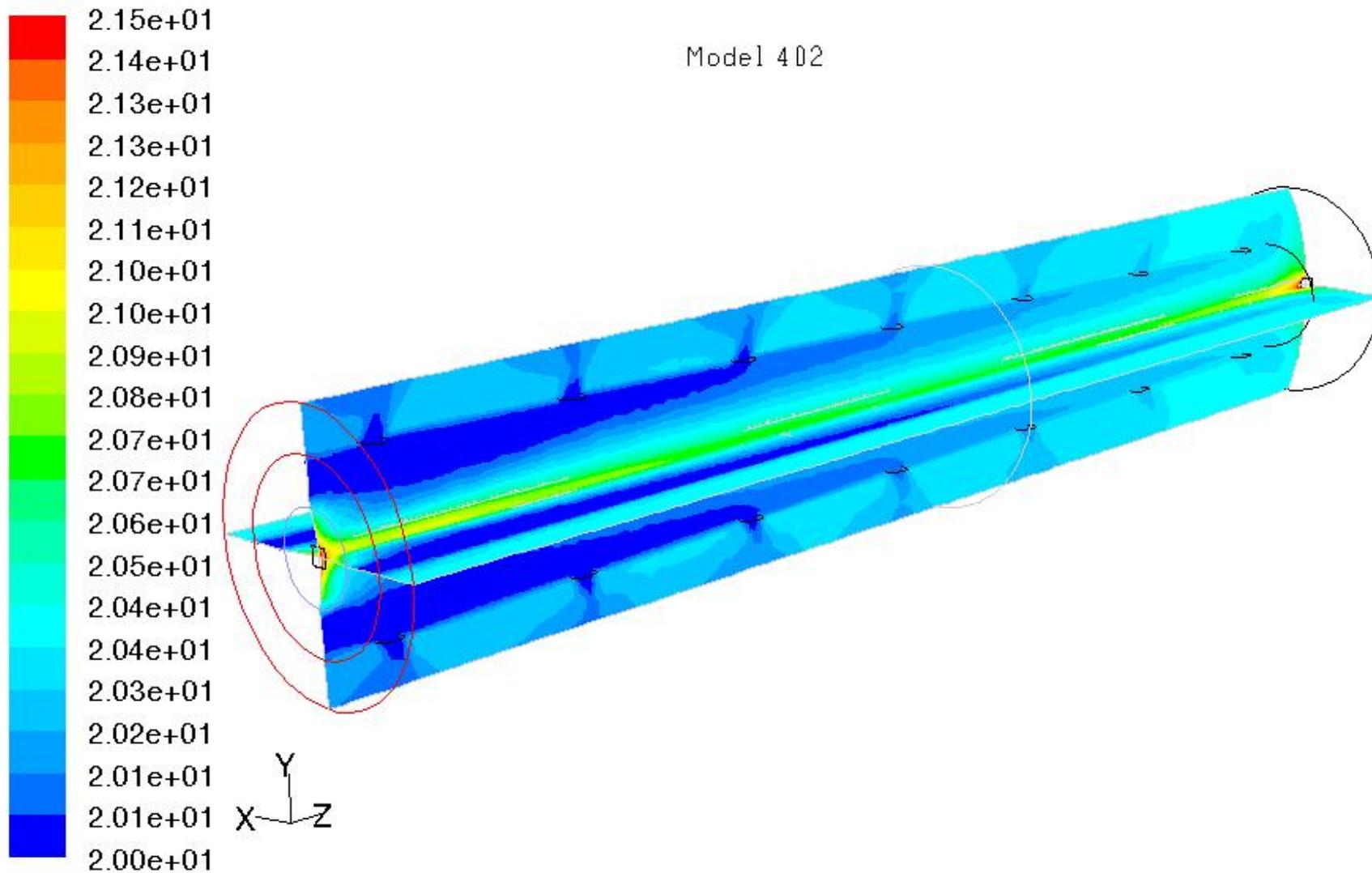
- Silviu Covrig has led CFD effort at UNH using Fluent
- Parallel effort by Dave Meekins using ANSYS CFX
- Juliette Mamme led GEANT effort
 - Continued by Craig Carrigee at MSU



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Model 402

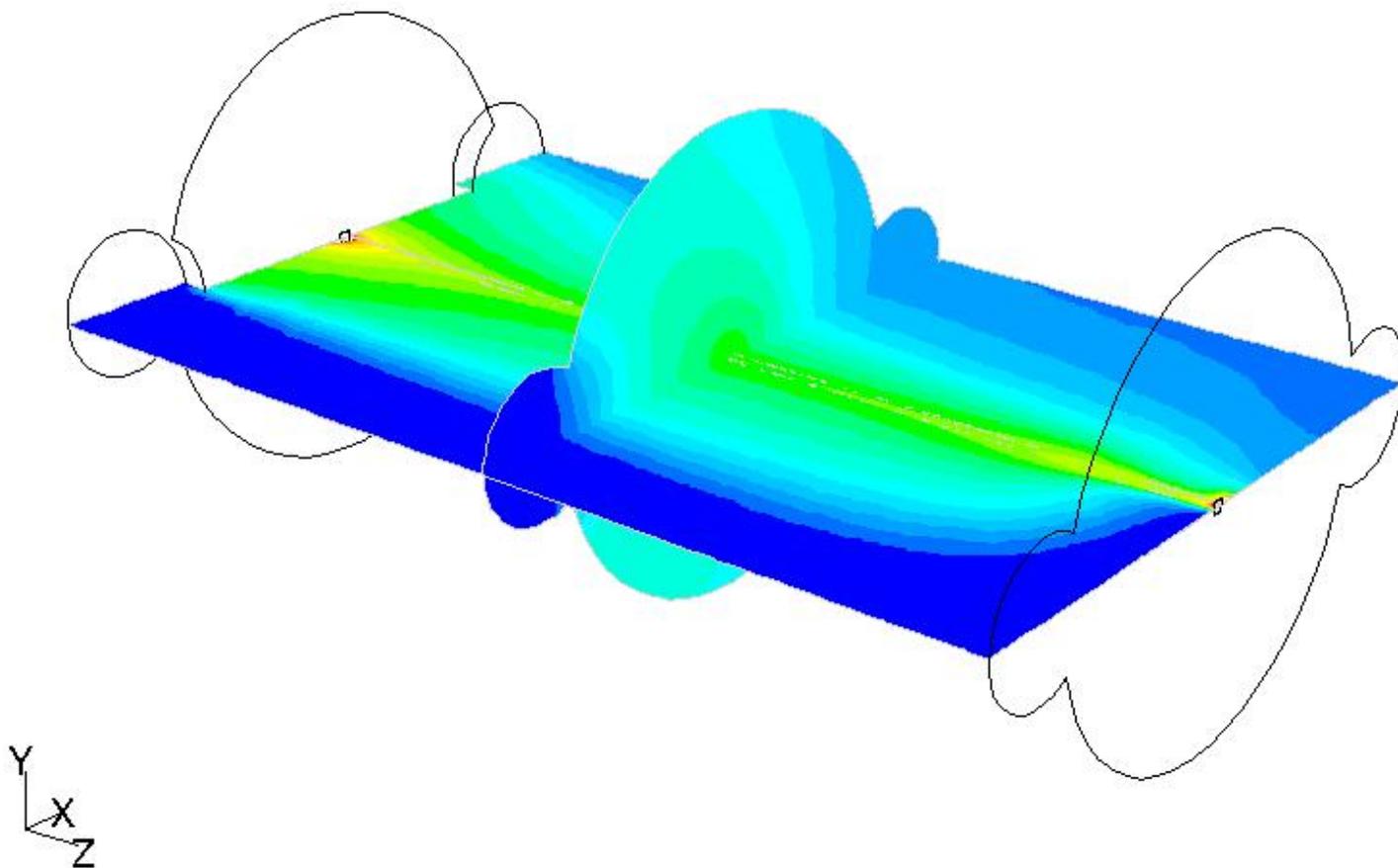
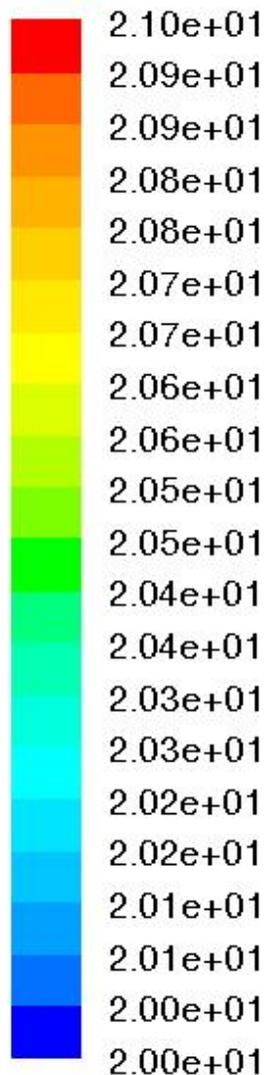


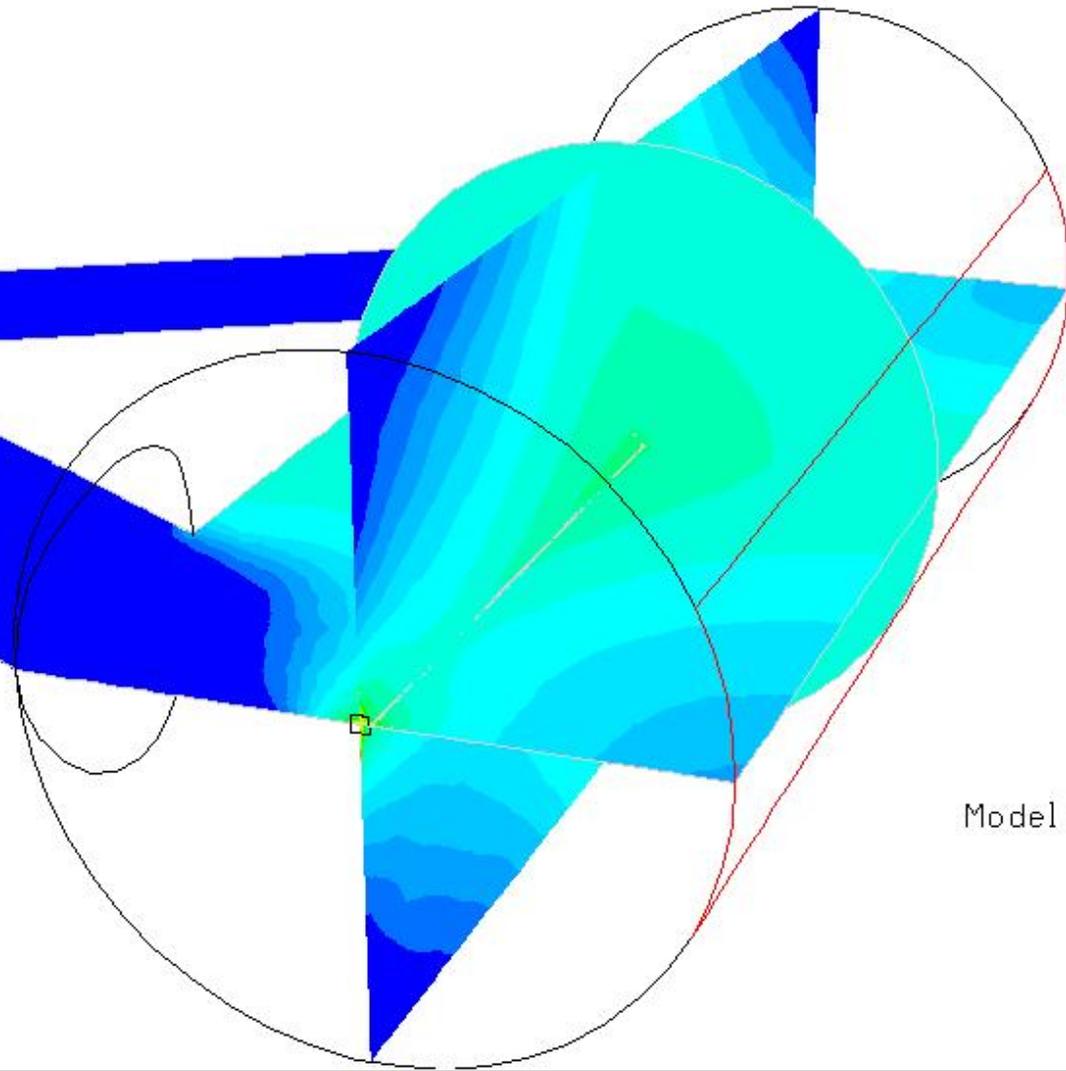
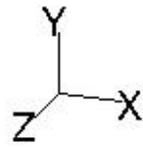
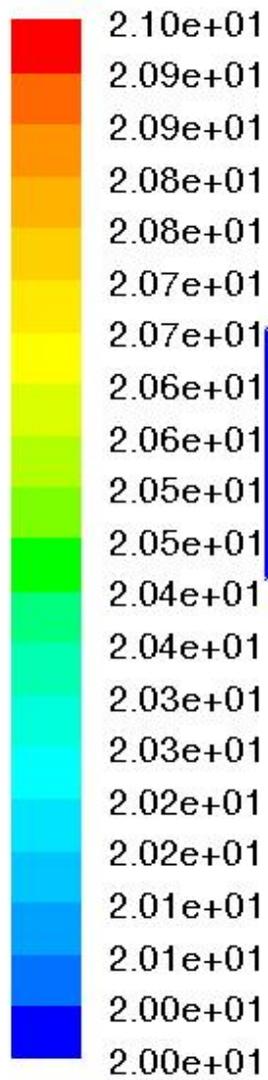
Contours of Static Temperature (k)

Jul 23, 2006
FLUENT 6.2 (3d, segregated, ske)

Transverse flow cells

Model 604

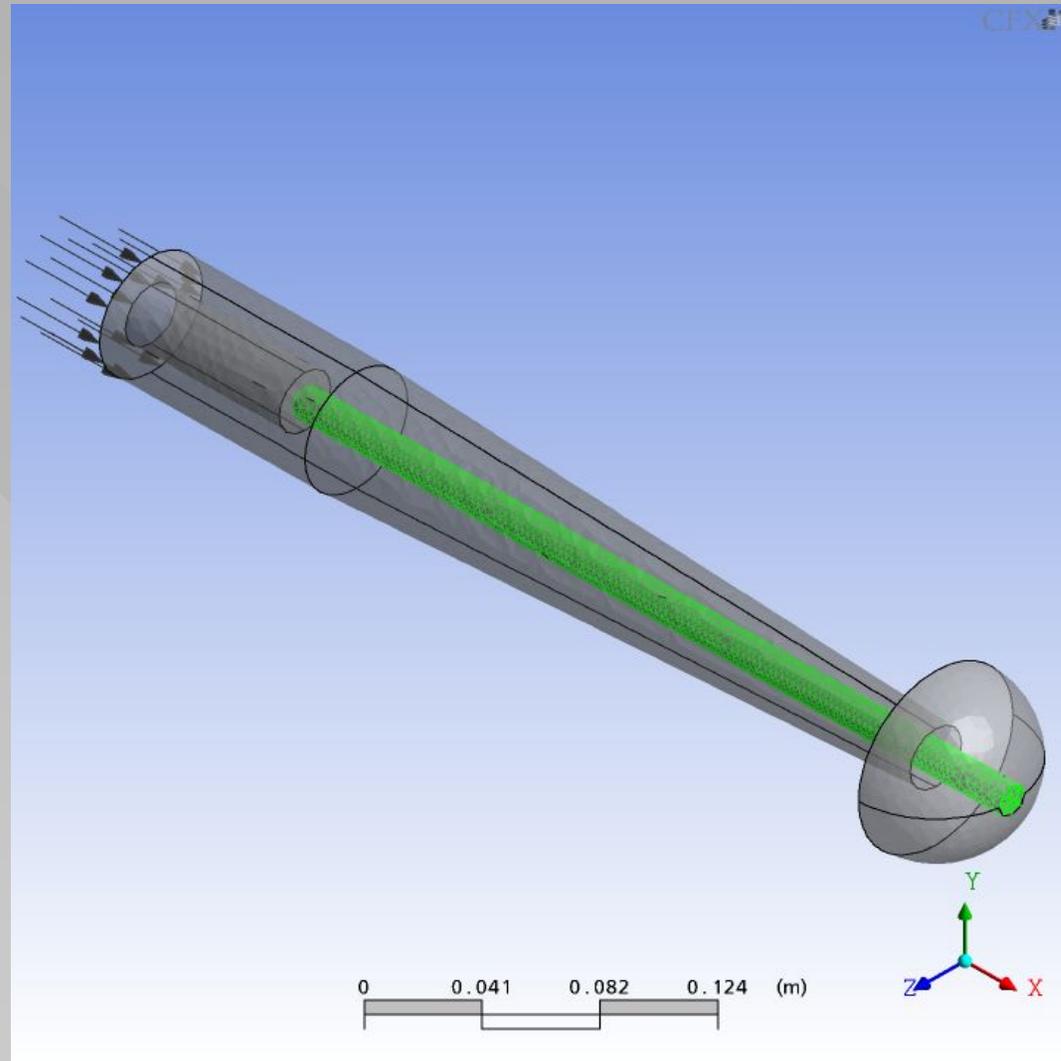




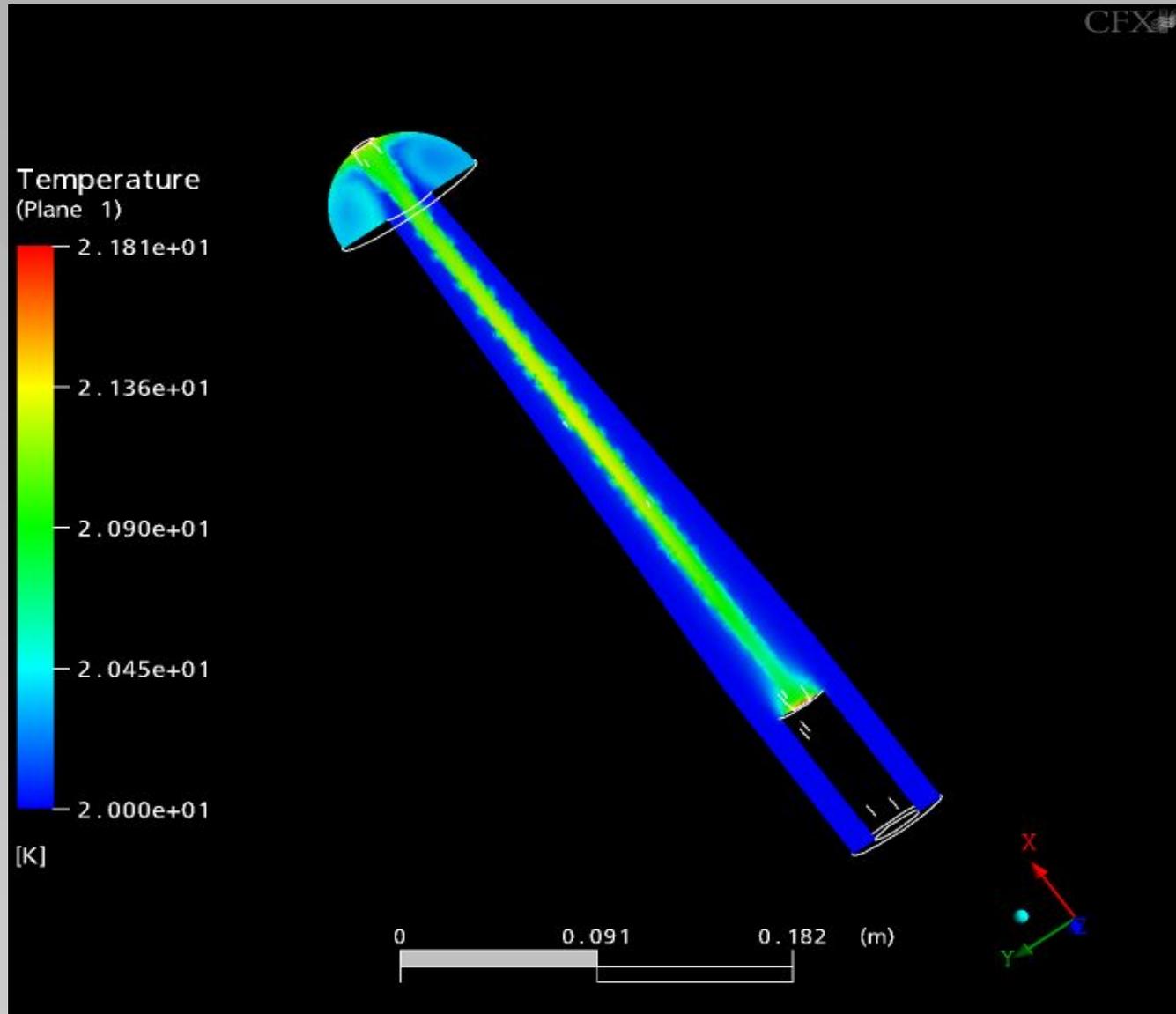
Contours of Static Temperature (k)

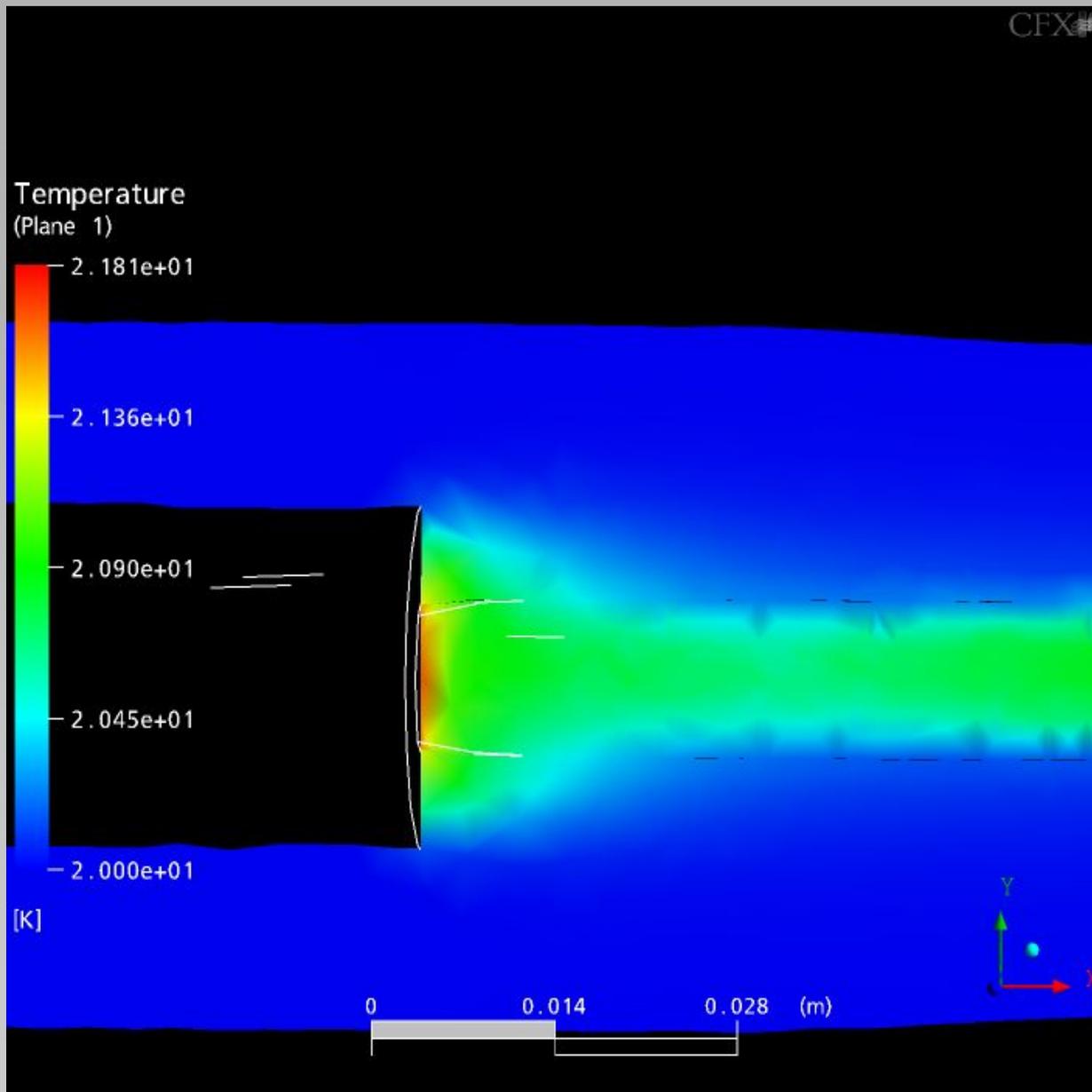
G0 style cell

From Dave
Meekins using
ANSYS CFX

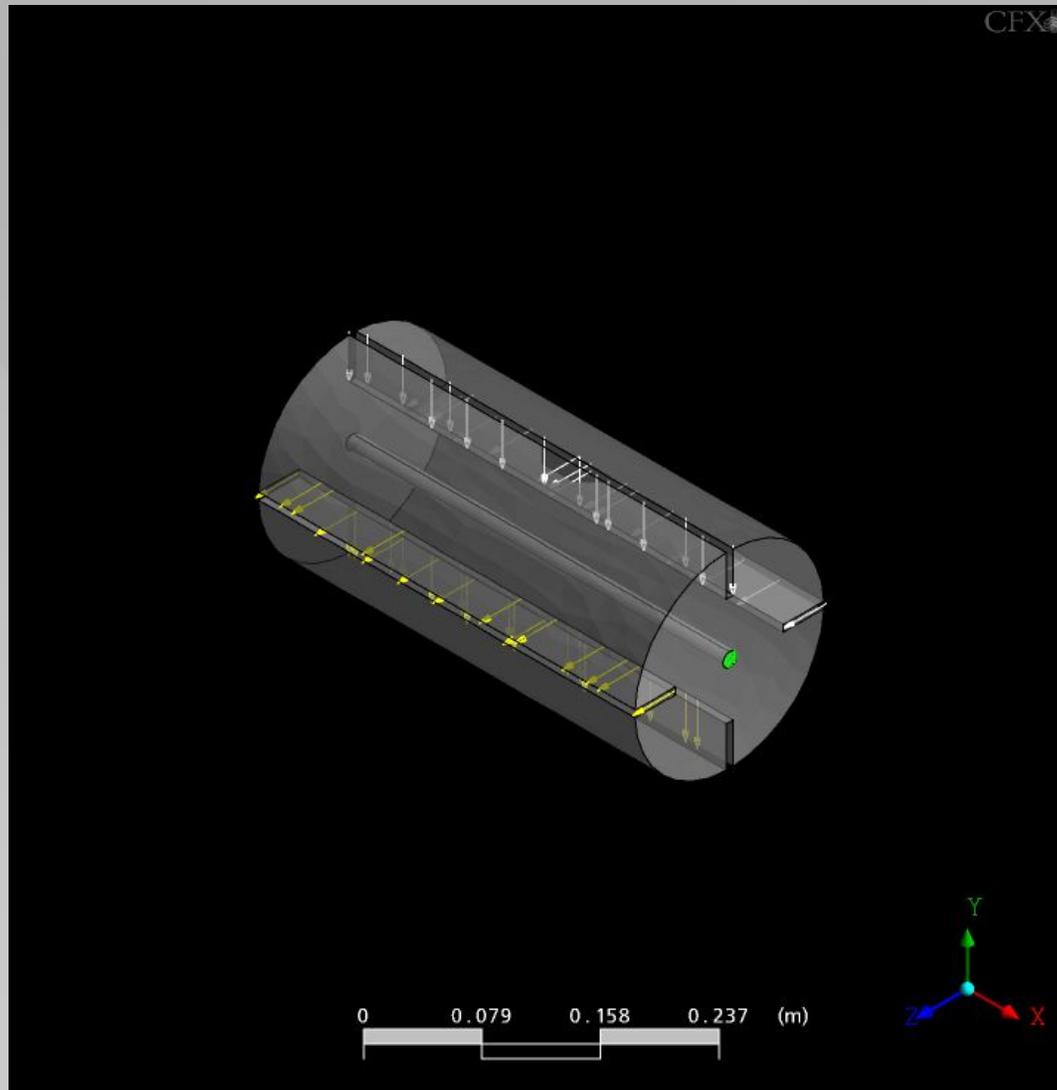


G0 style cell

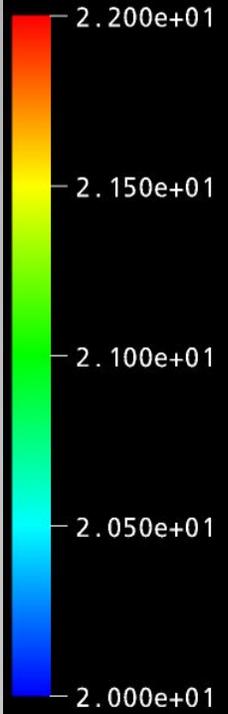




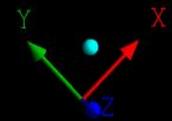
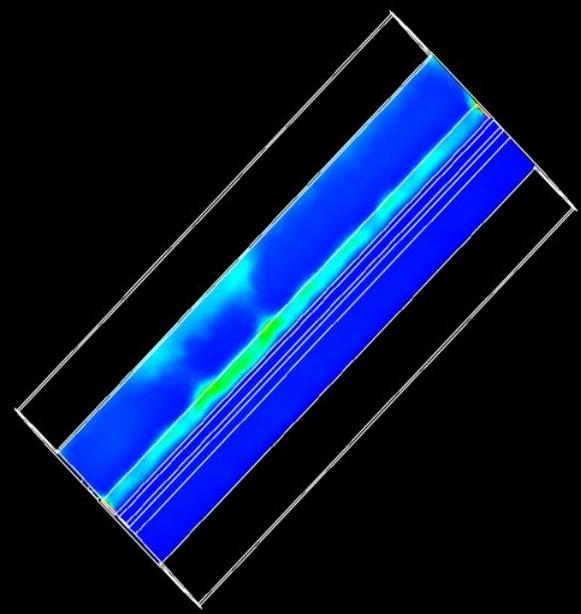
Cross flow injected cell

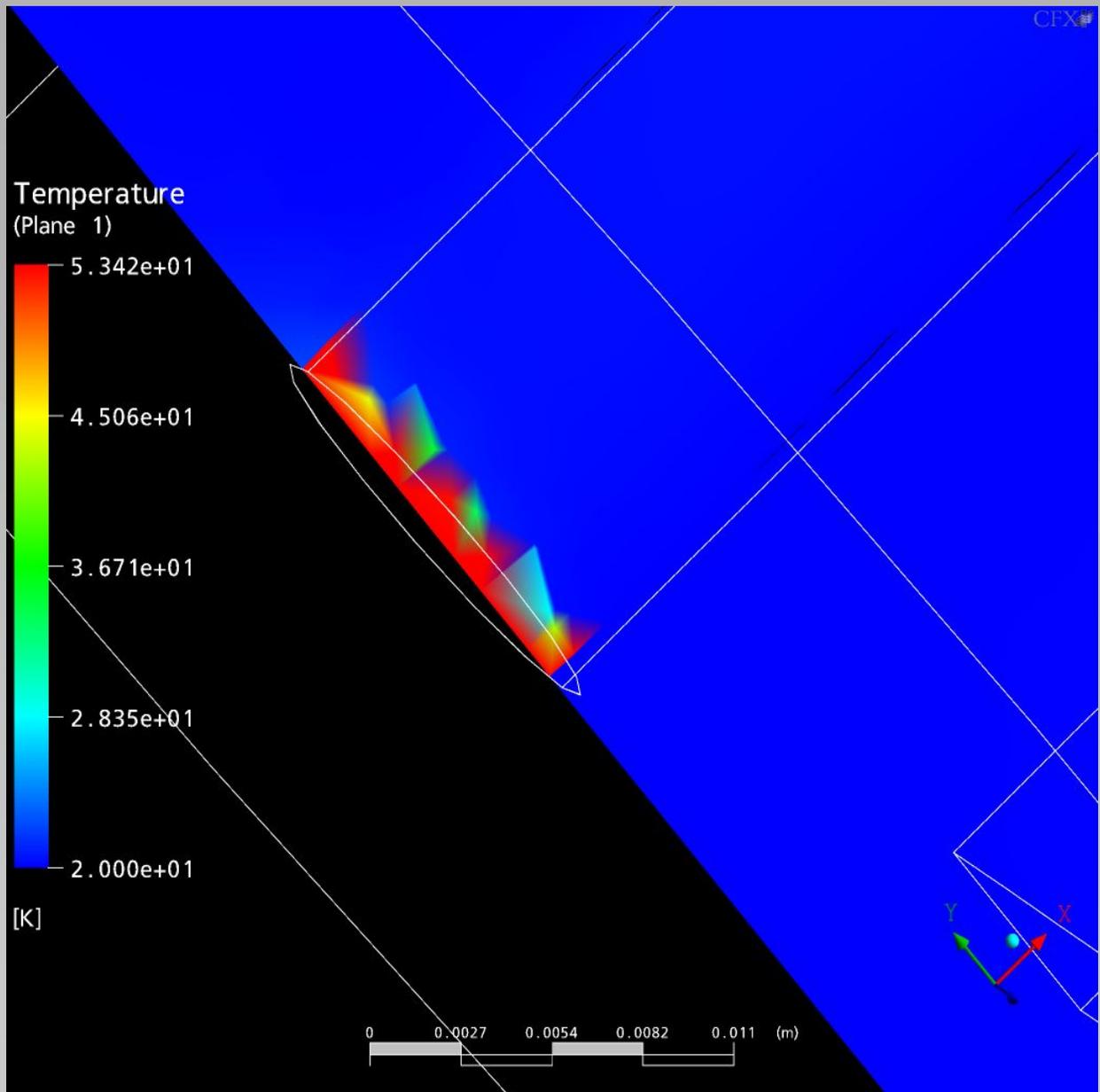


Temperature
(Plane 1)

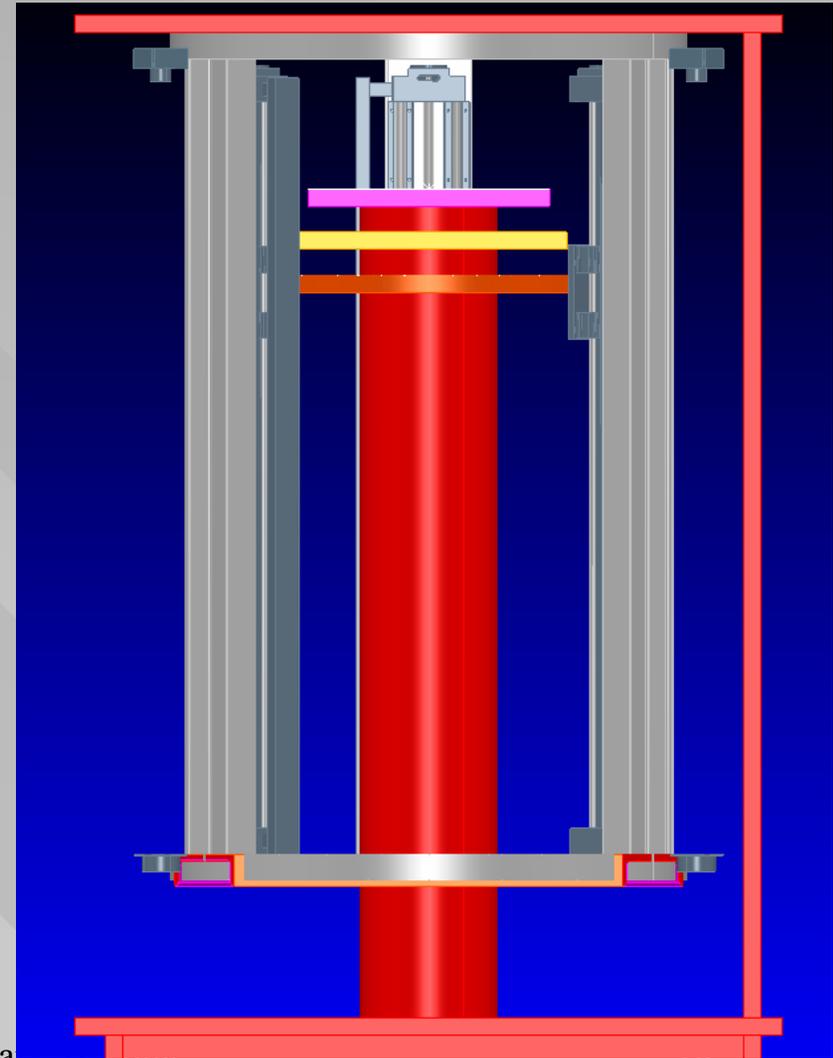
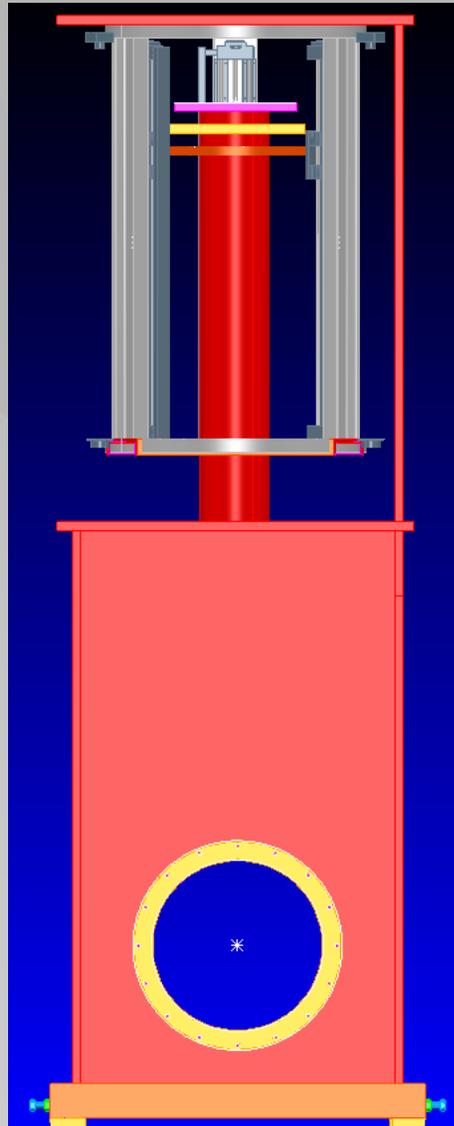
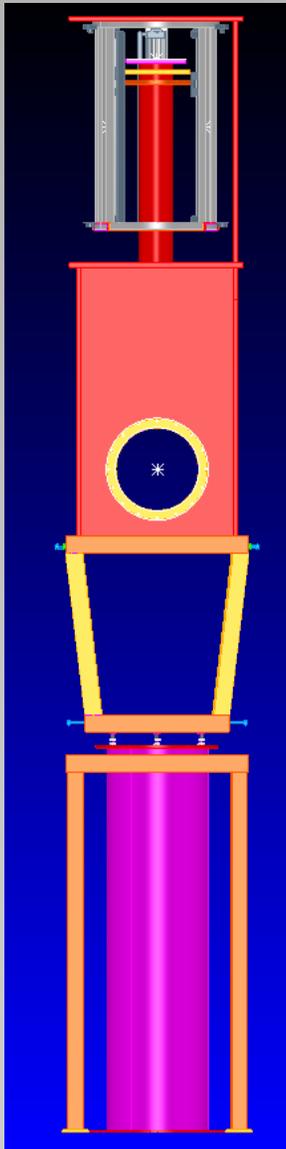


[K]

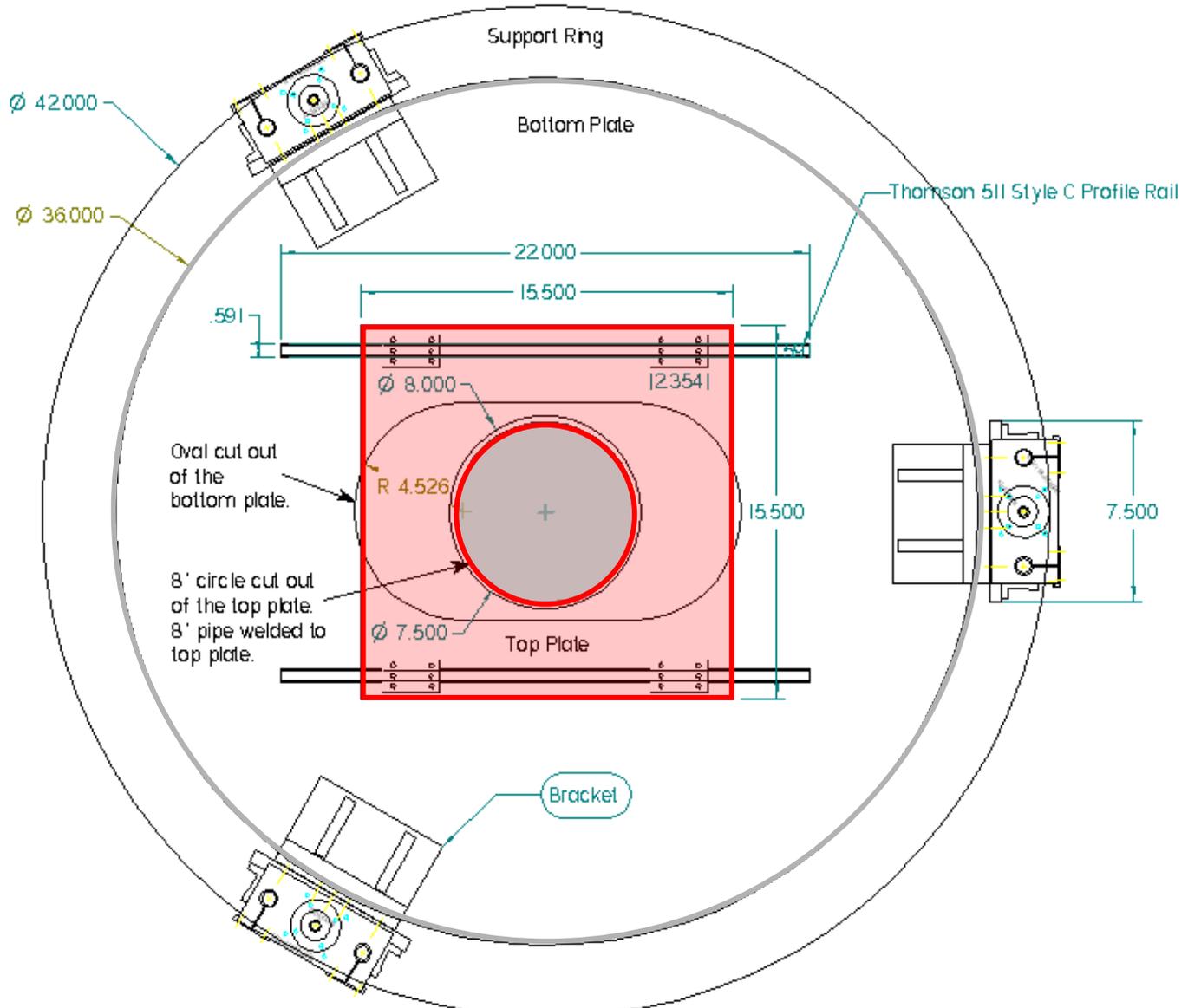




Scattering Chamber & Lifter



Top View



Near Term Items to be Determined/Finished

- **Cell / Block geometry**
- **Solid Targets**
- **Final design of motion system.**



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