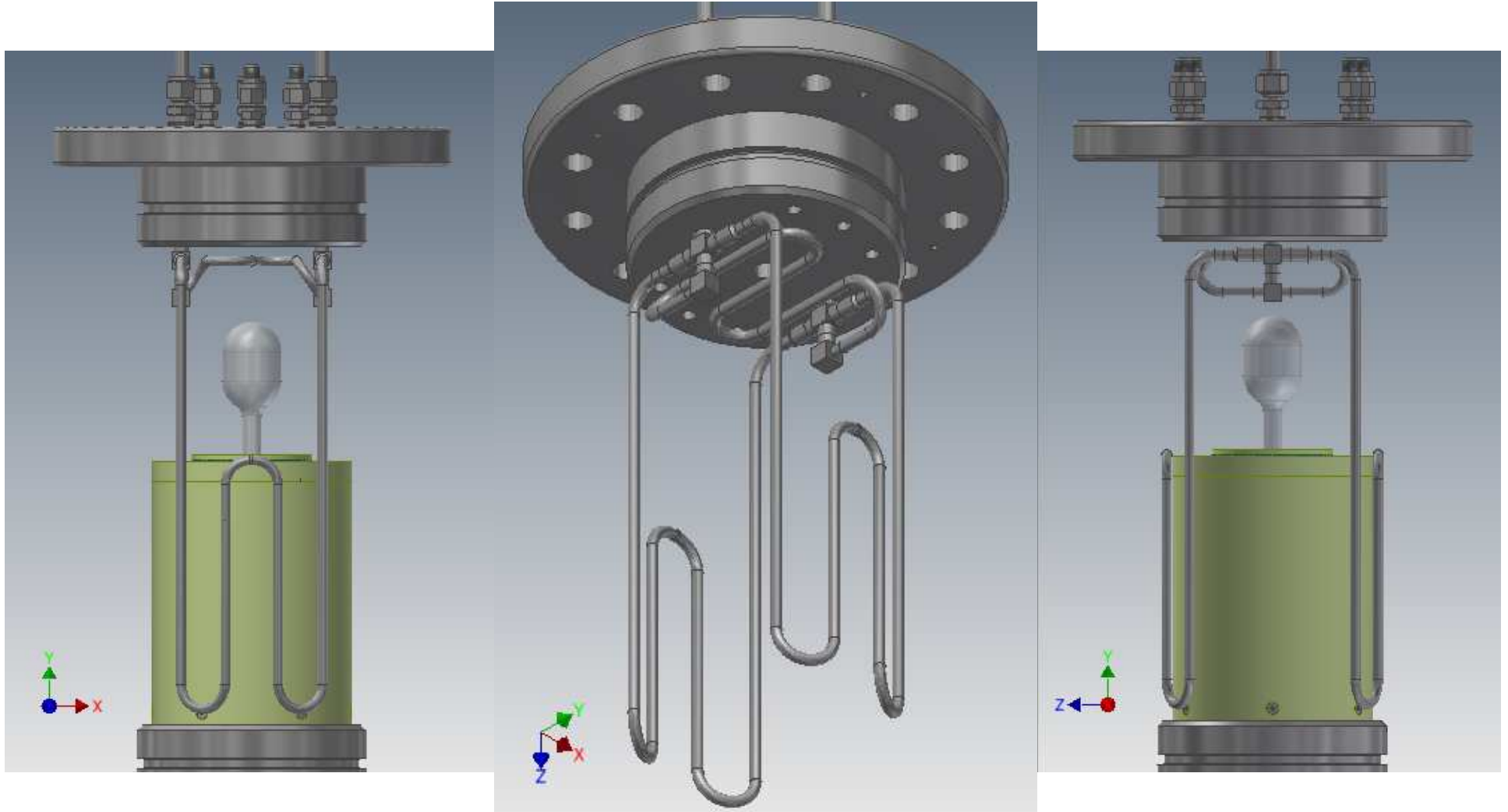


# Bubble Chamber Design and Construction Progress

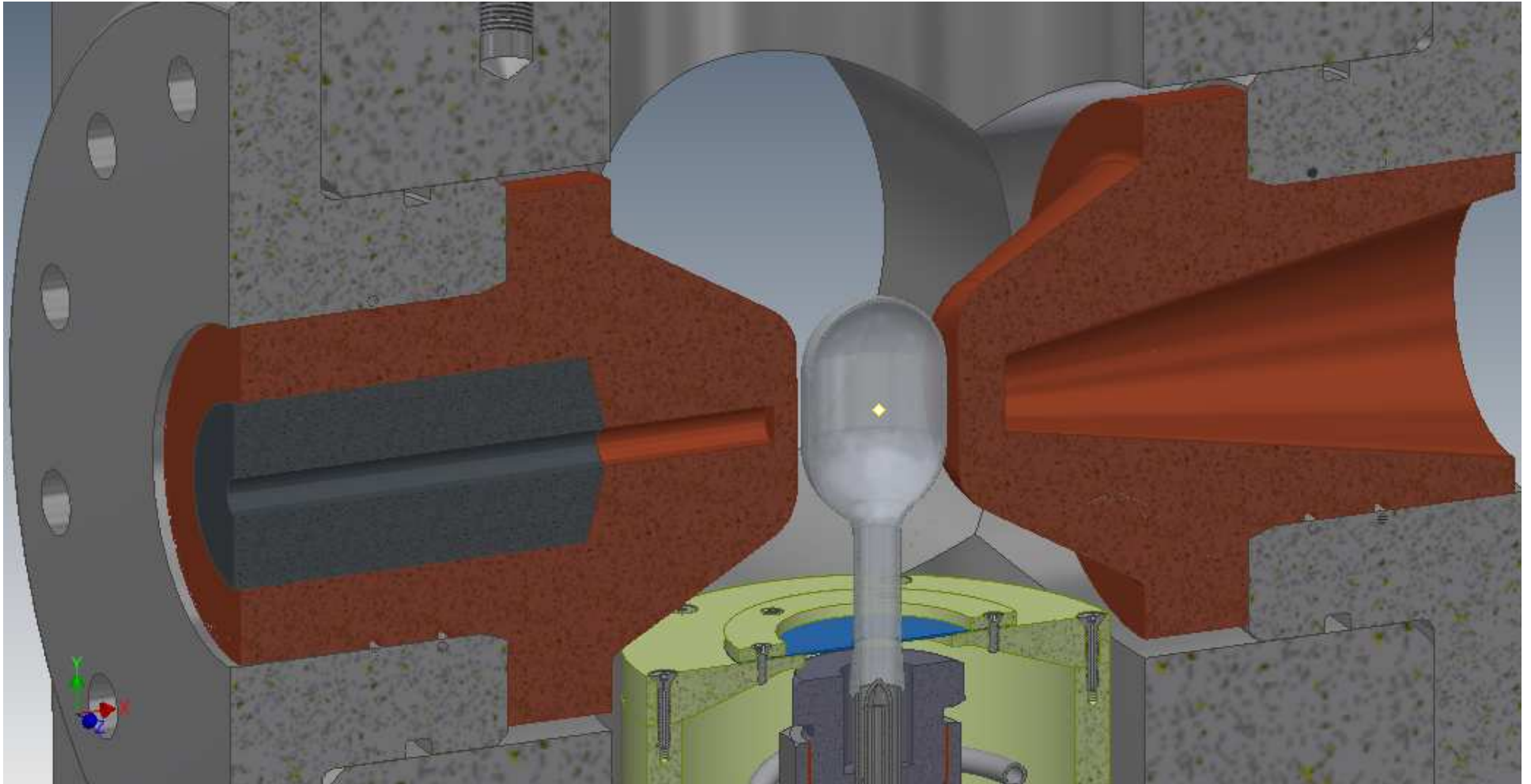
6 April 2016

B. DiGiovine

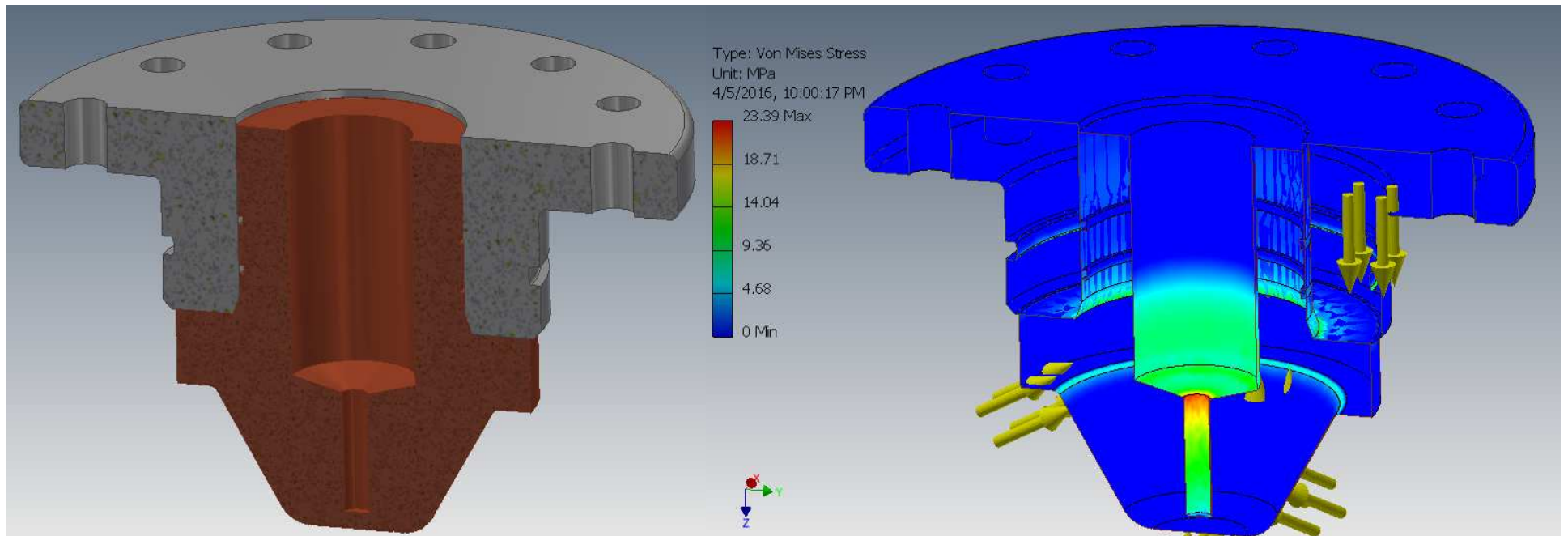
# Hydraulic Heat Exchanger



# Beam Ports and Collimator

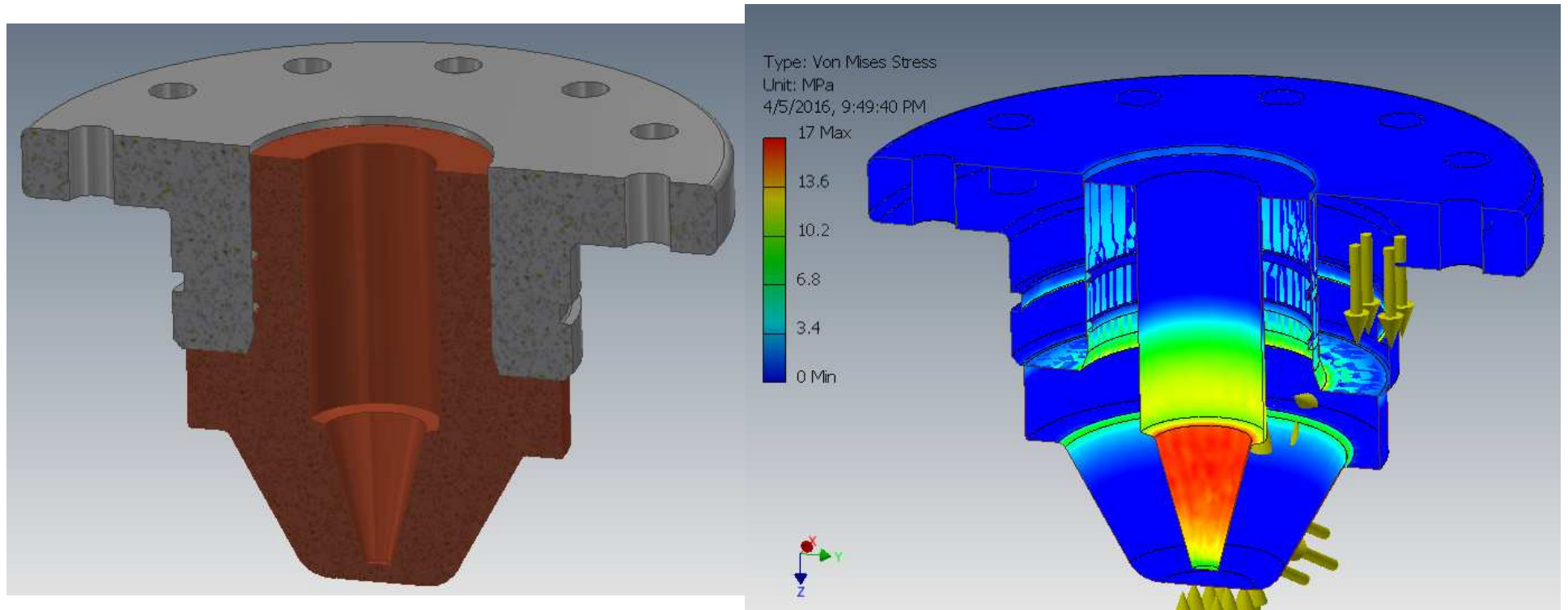


# Beam Entrance Port FEA

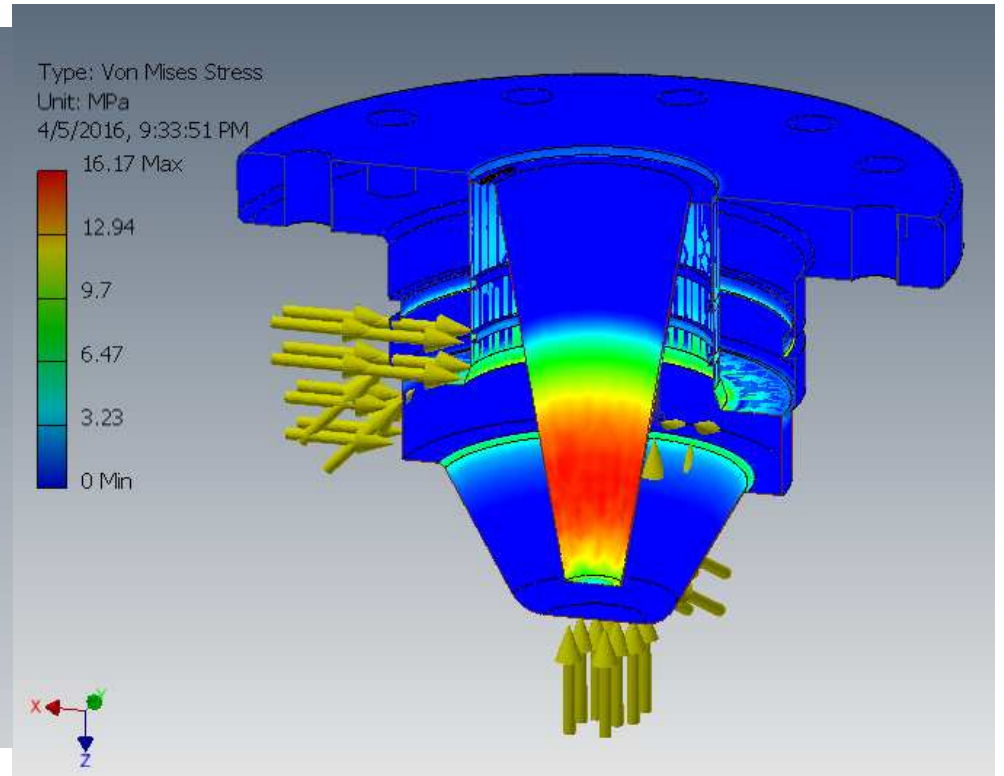
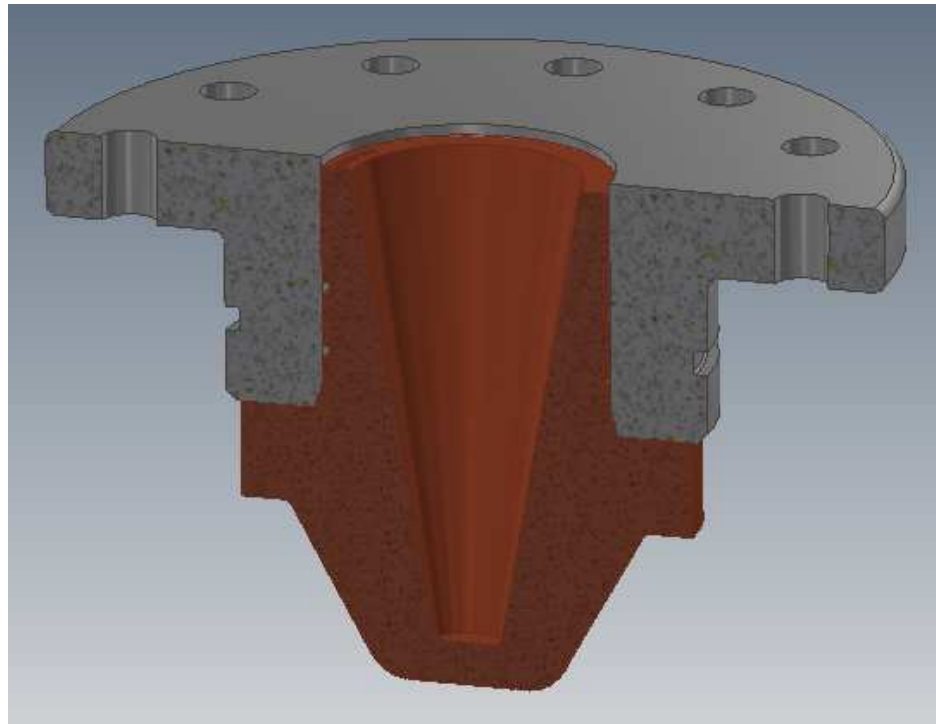


Fatigue?

# Beam Entrance Port FEA

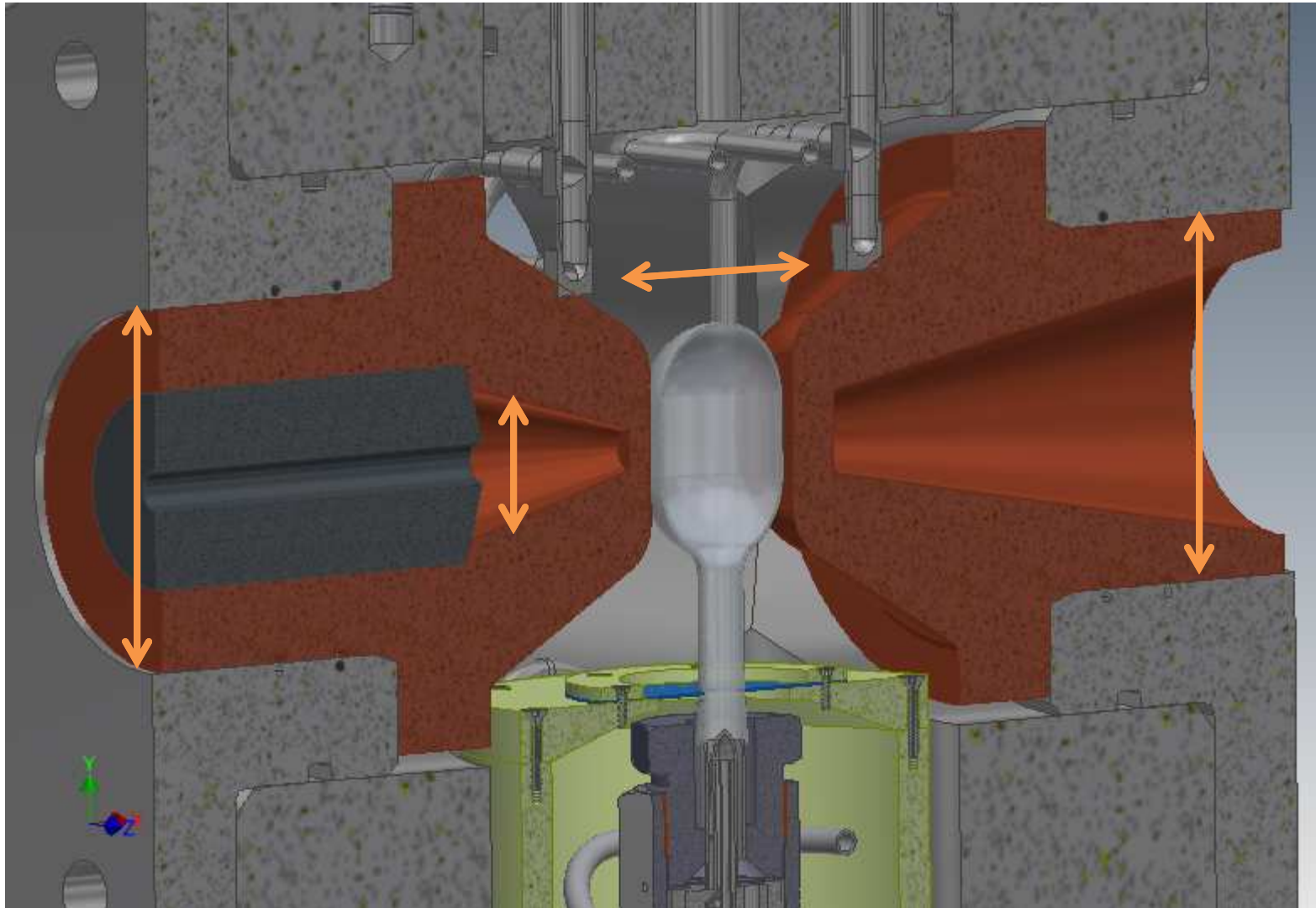


# Beam Exit Port FEA

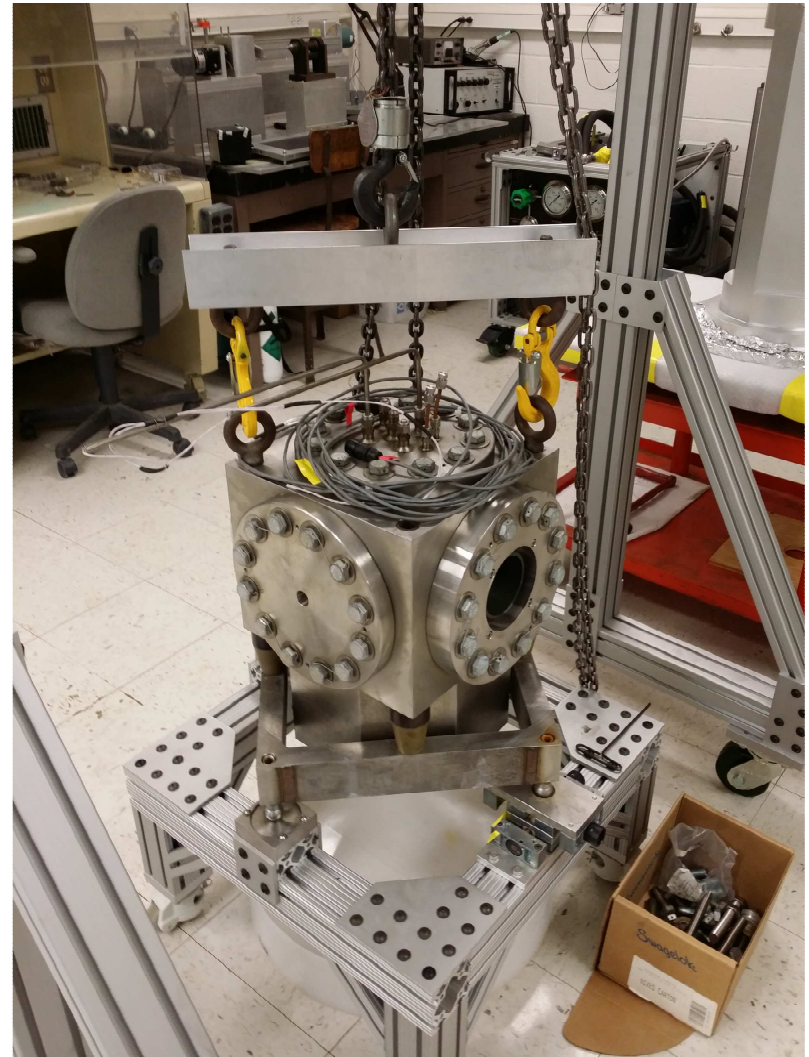




# Interference and Compromises

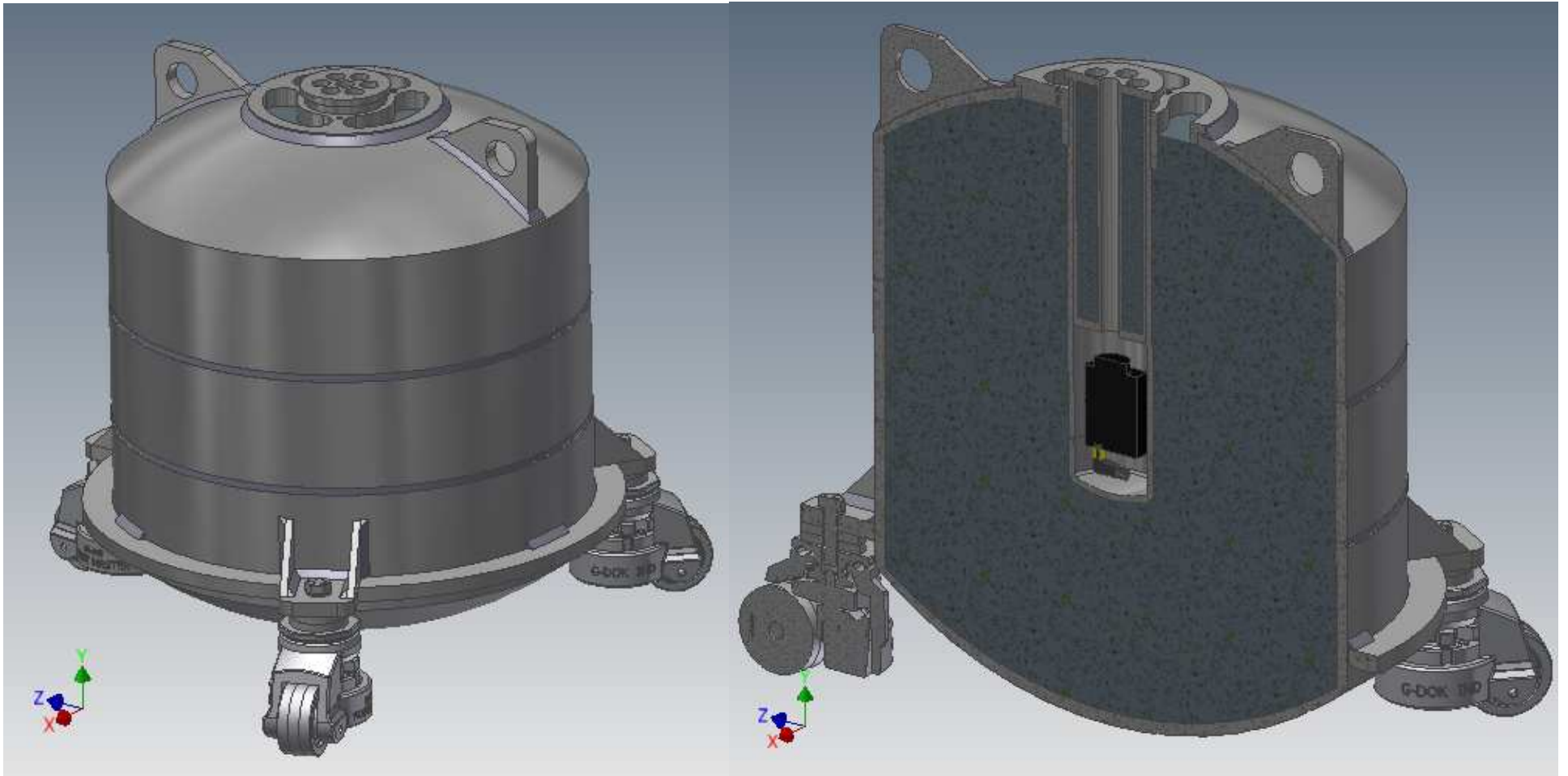


# Beam Ports





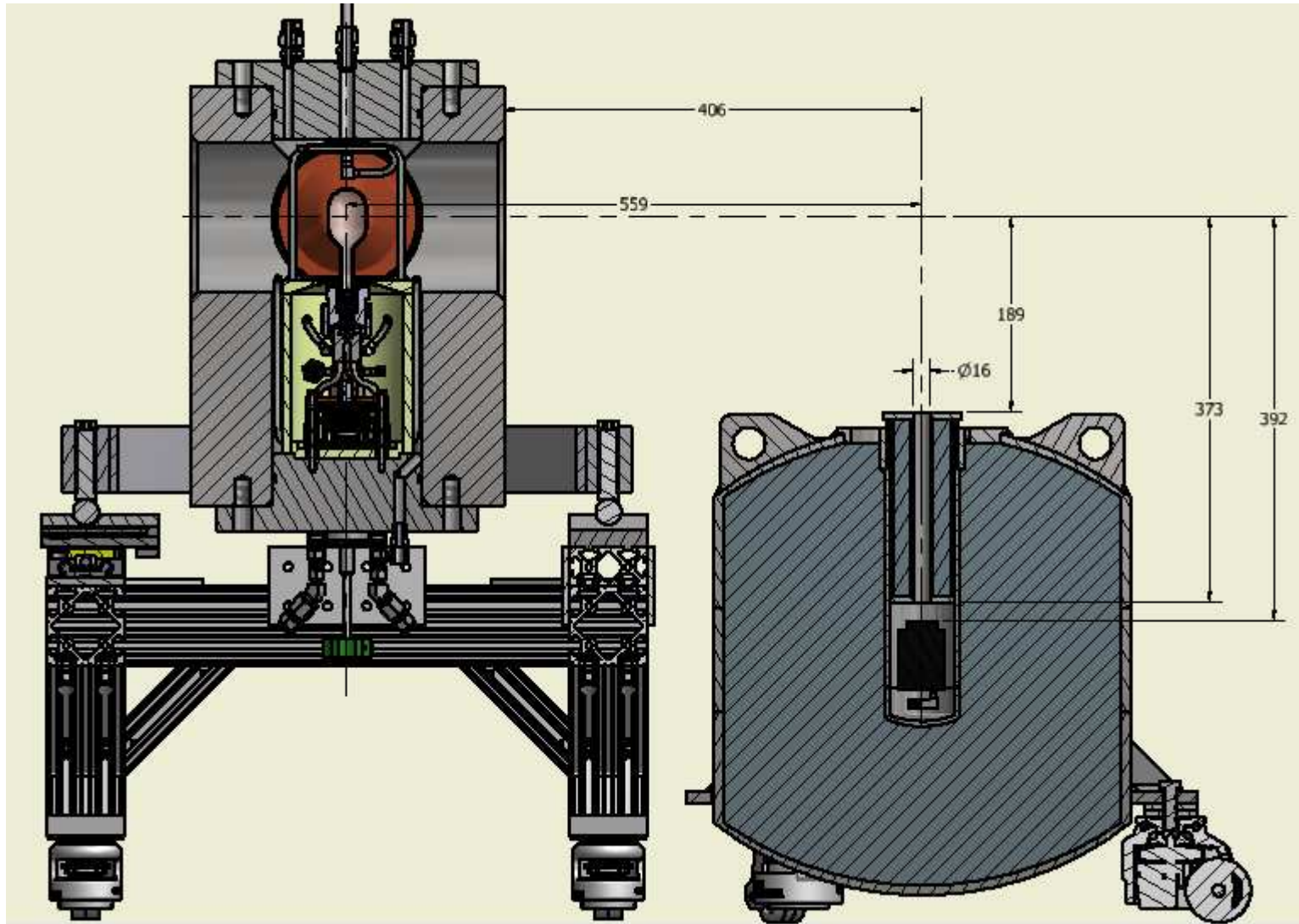
# Camera Cask



# Camera Cask



# Optical System



# Optical System

## Quantum Efficiency

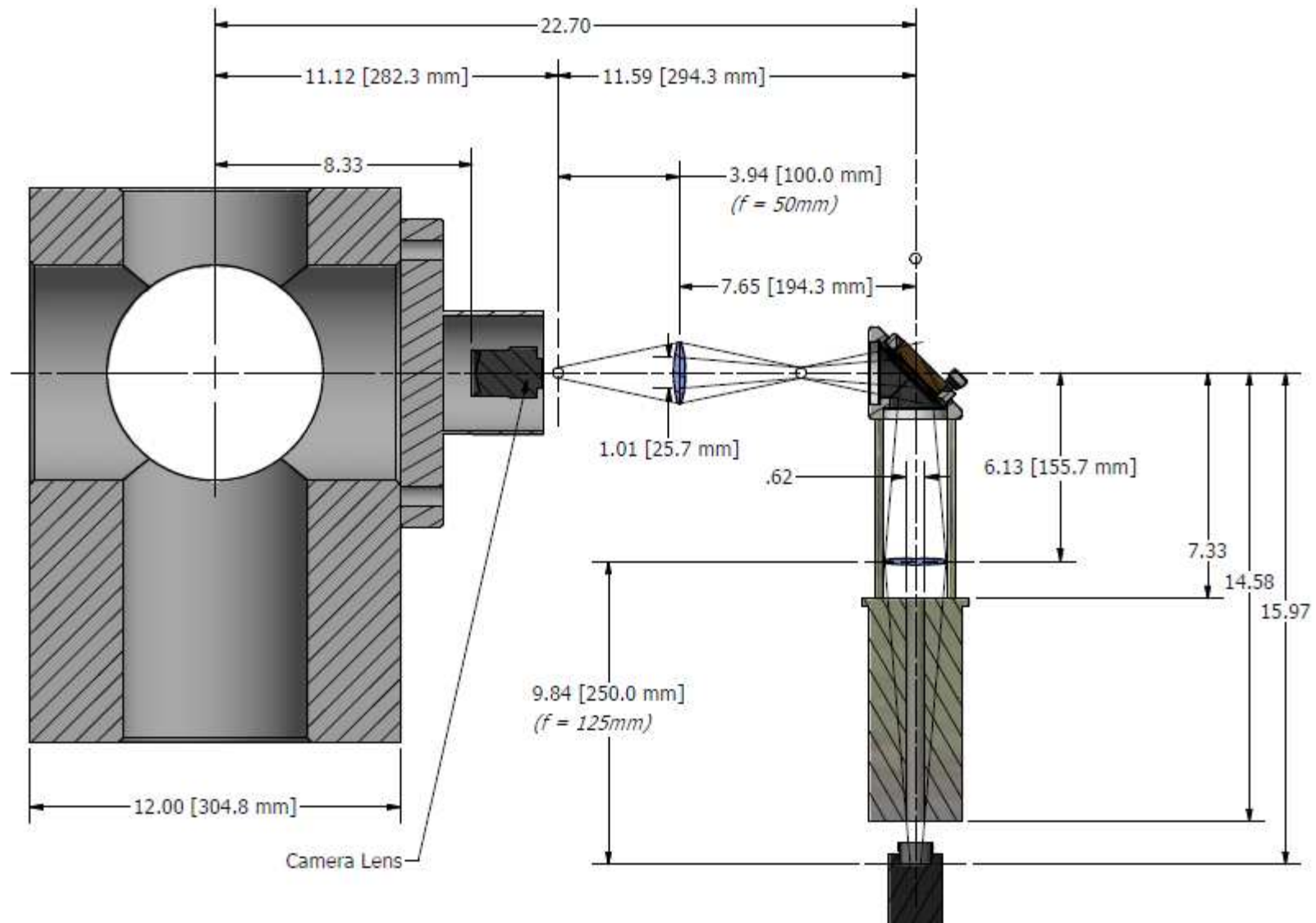


### Changes to Back Lighting System

- QE of Sensor Peaks Around 525nm
- Large IR Component of Old White LED Spectrum = Unnecessary Heat Load
- Exploring Implementation of Aspheric Condenser System



# Optical System



# Optical System

System Parameter Editor

Main | **Conjugates** | Aperture | Field | Waveband | Obj/Img

Object Distance ☒ -300.0  
I ☐ -240.4971  
Image Distance ☐ 211.979  
I' ☐ -31.6879  
Magnification ☐ 0.1318  
Track ☐ 973.479

Object at Infinity ☐  
Finite Conjugates ☒  
Image at Infinity ☐

System Data Editor

Edit system | Groups & Modules | Tilts & Decenters

#	Stop	Dirn	Component	Sepr
1				
2		Nom	311207000	5.000
3	Stop			85.000
4		Rev	312334000	
5				270.000
6				80.000
7		Nom	312335000	
8				
9				
10				

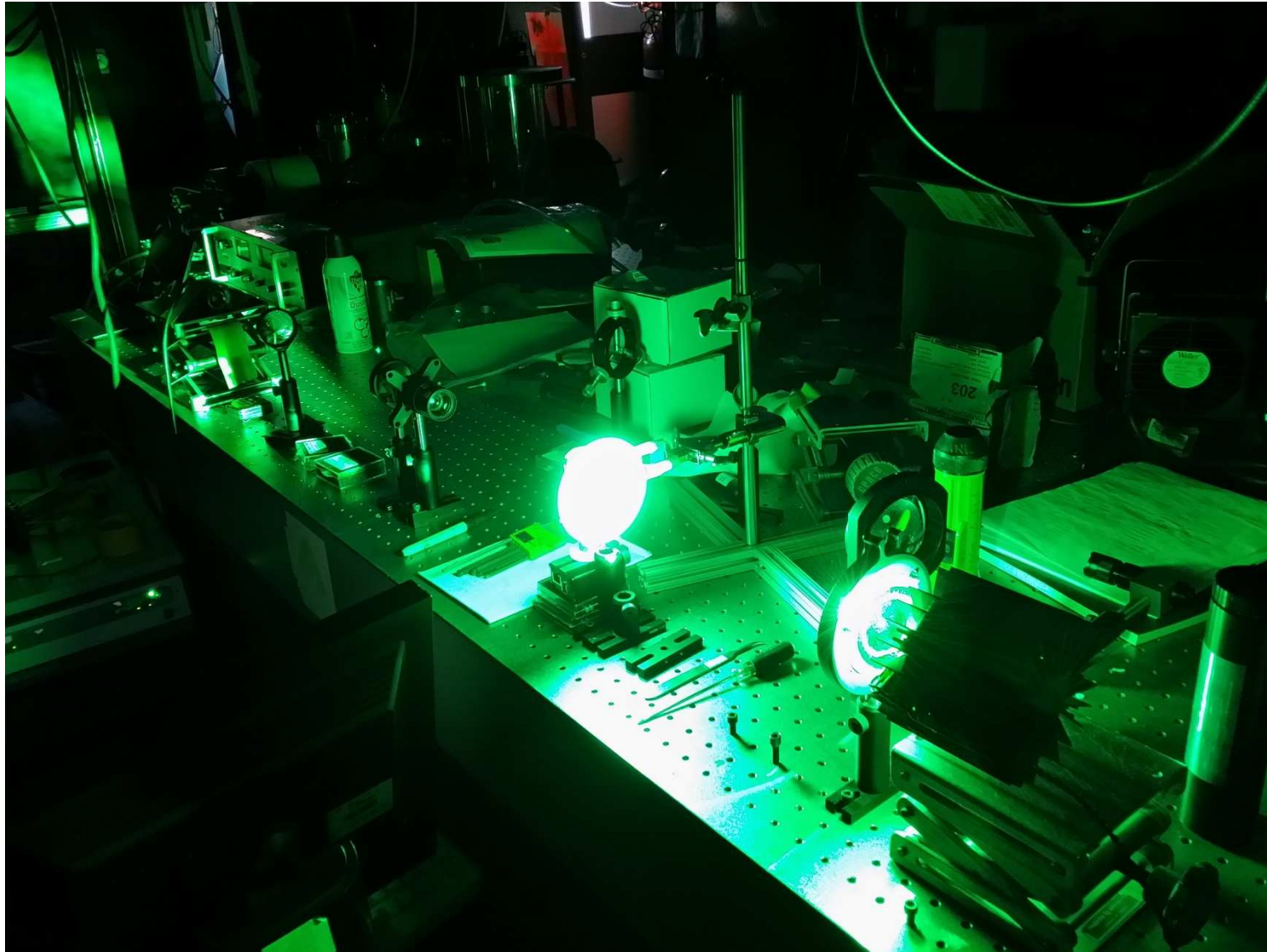
ThLens Lens Mirror Block Prism Break Covert Covert

Rel Fld: 1.0 Rel Ap: 0.0 Summary

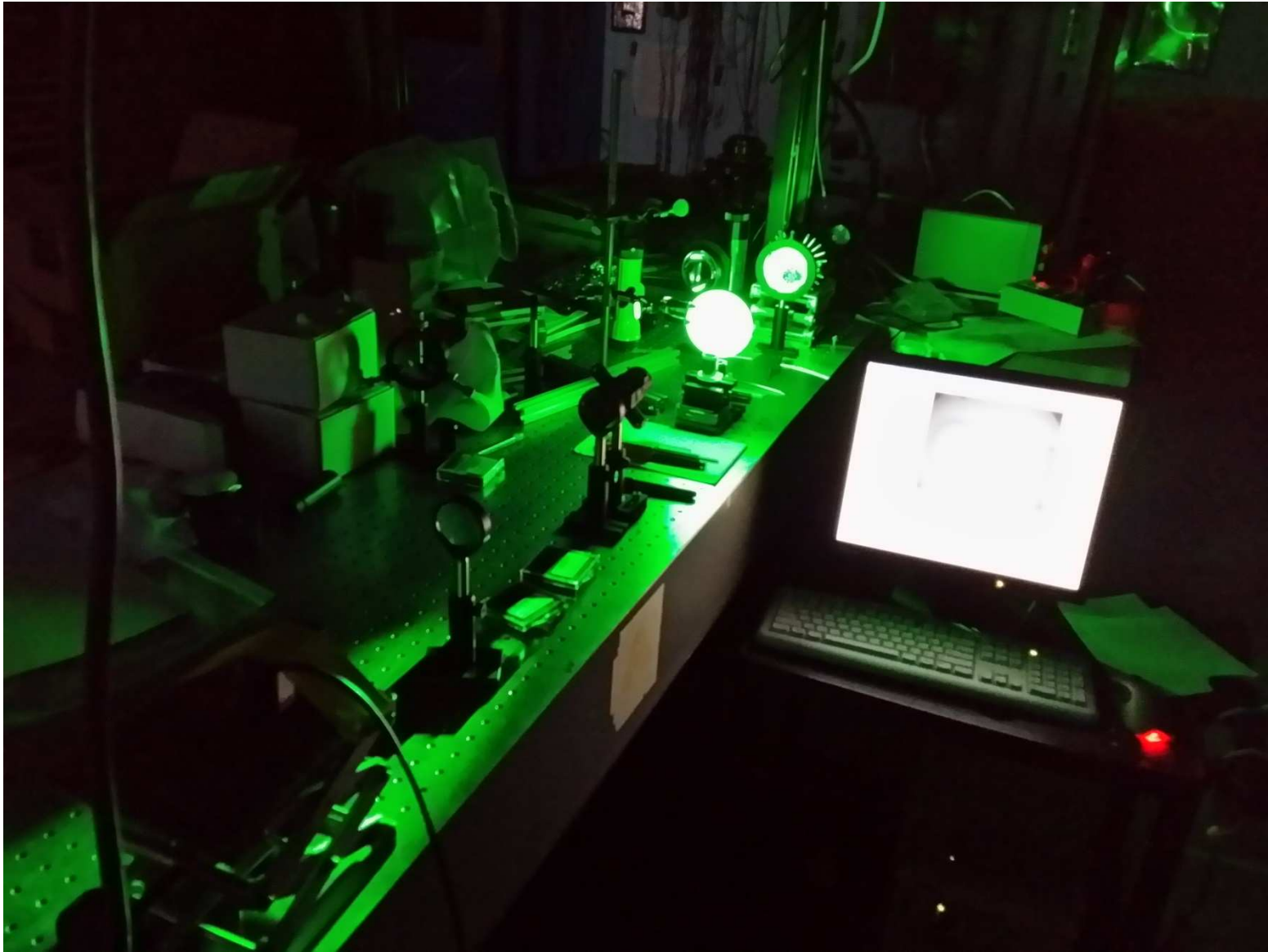
Mid wave Vig 3D

Lens Drawing

# Optical System Concept Test



# Optical System Concept Test





# Optical System Concept Test

