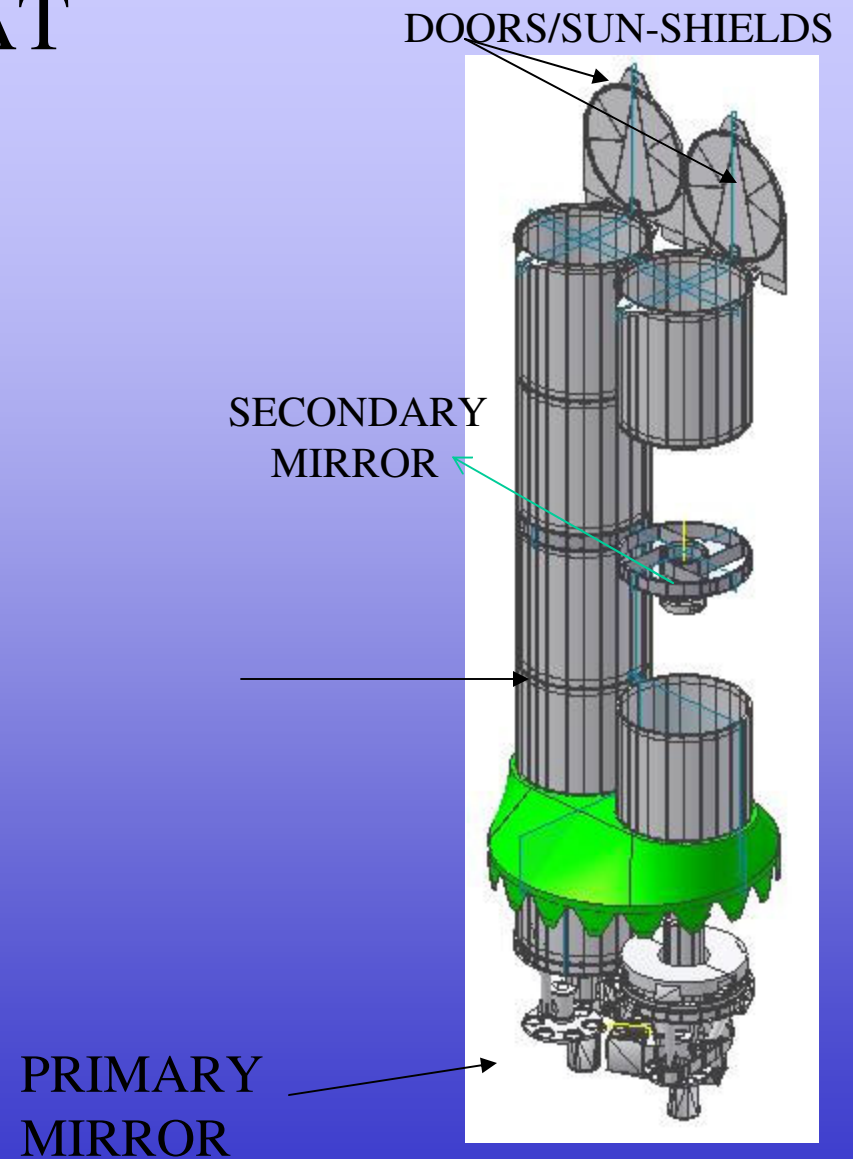
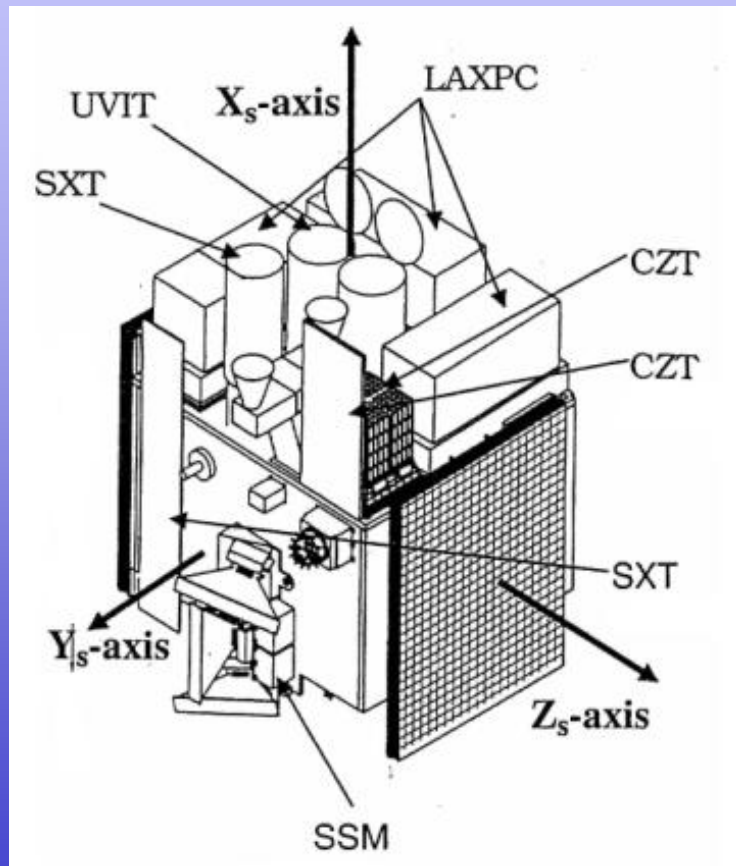


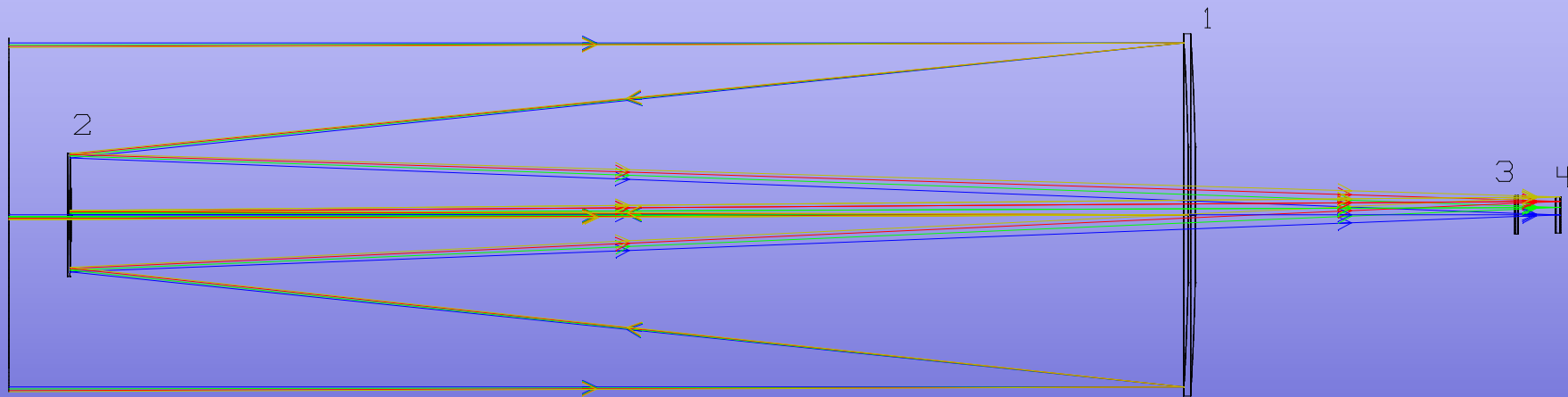
IIA SC. MEETING
APR. 13, 2007 @ IIA

UVIT CONFIGURATION AND DESIGN
S.Nagabhushana

CONFIGURATION OF PAYLOADS ON ASTROSAT



OPTICAL LAYOUT -- FUV CHANNEL

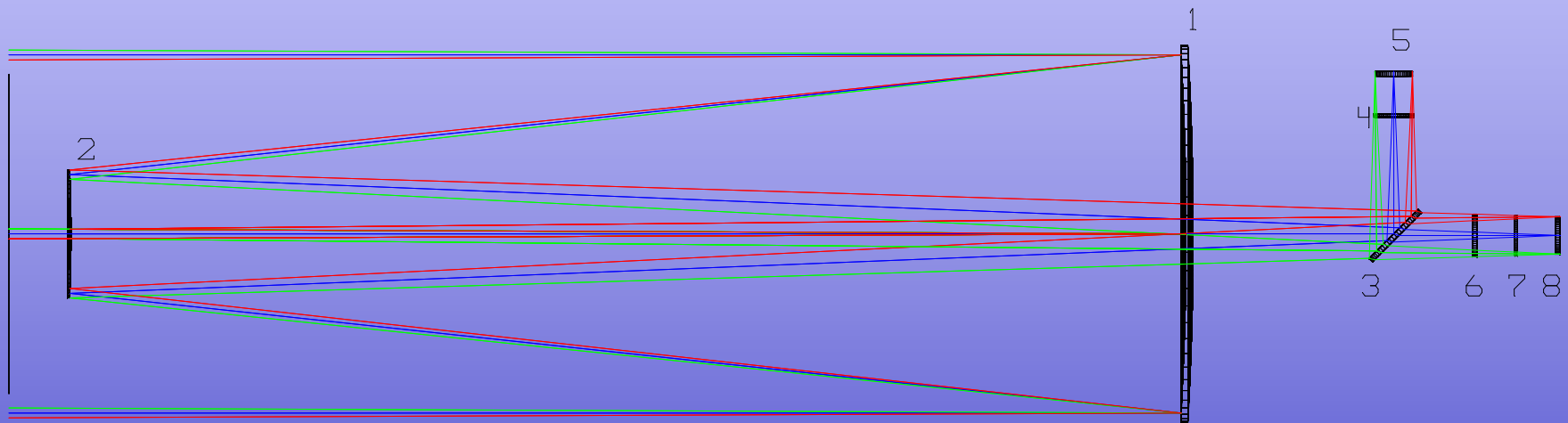


Eff. F = 4756.4 mm \pm 35 mm
Detector > 39 mm dia.

- 1- PRIMARY MIRROR
- 2- SECONDARY MIRROR
- 3- FILTER
- 4- DETECTOR WINDOW



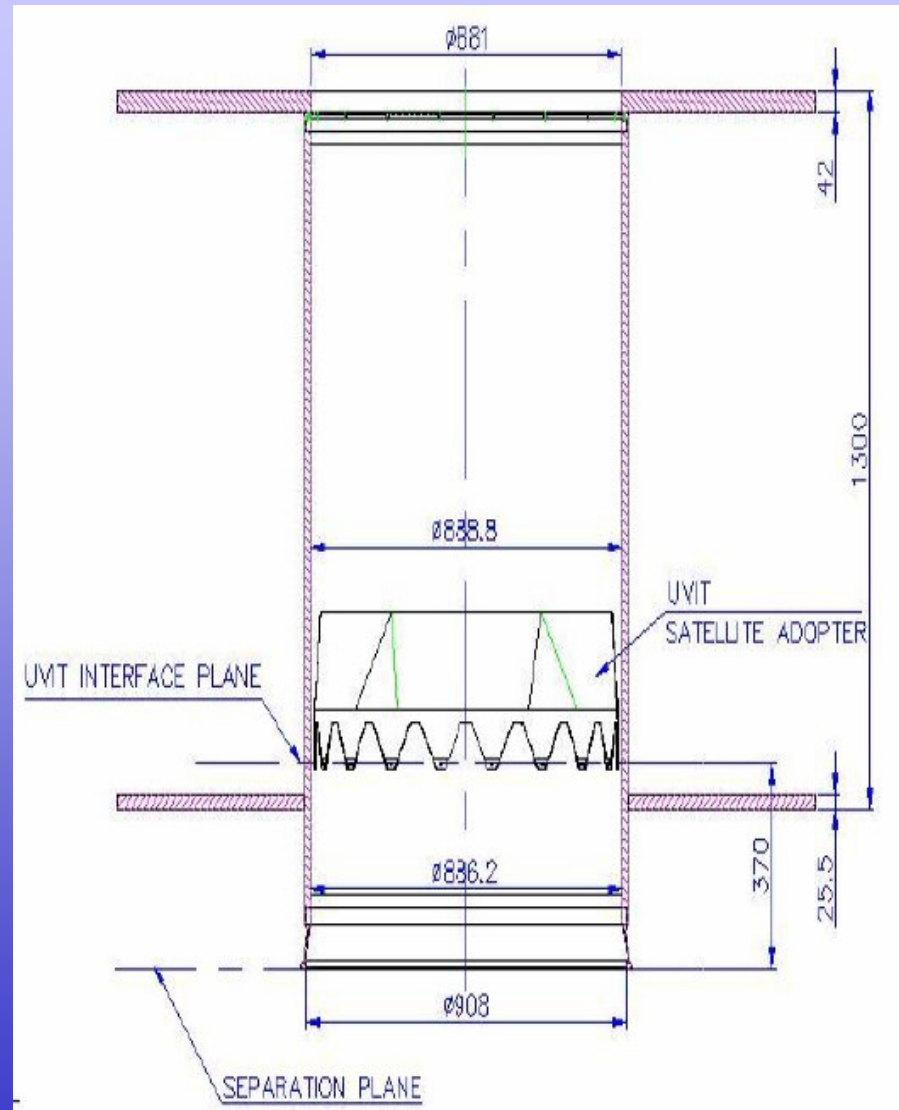
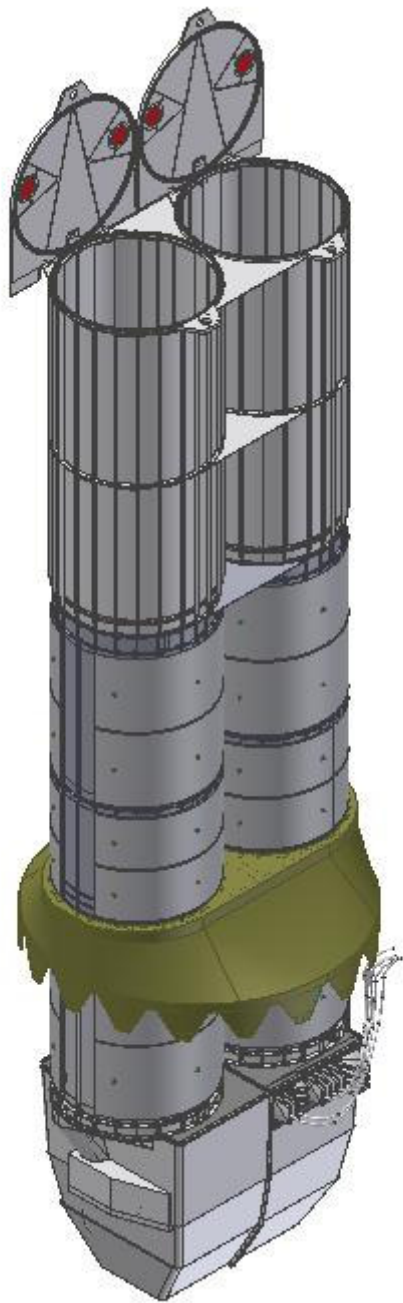
OPTICAL LAYOUT – NUV & VIS



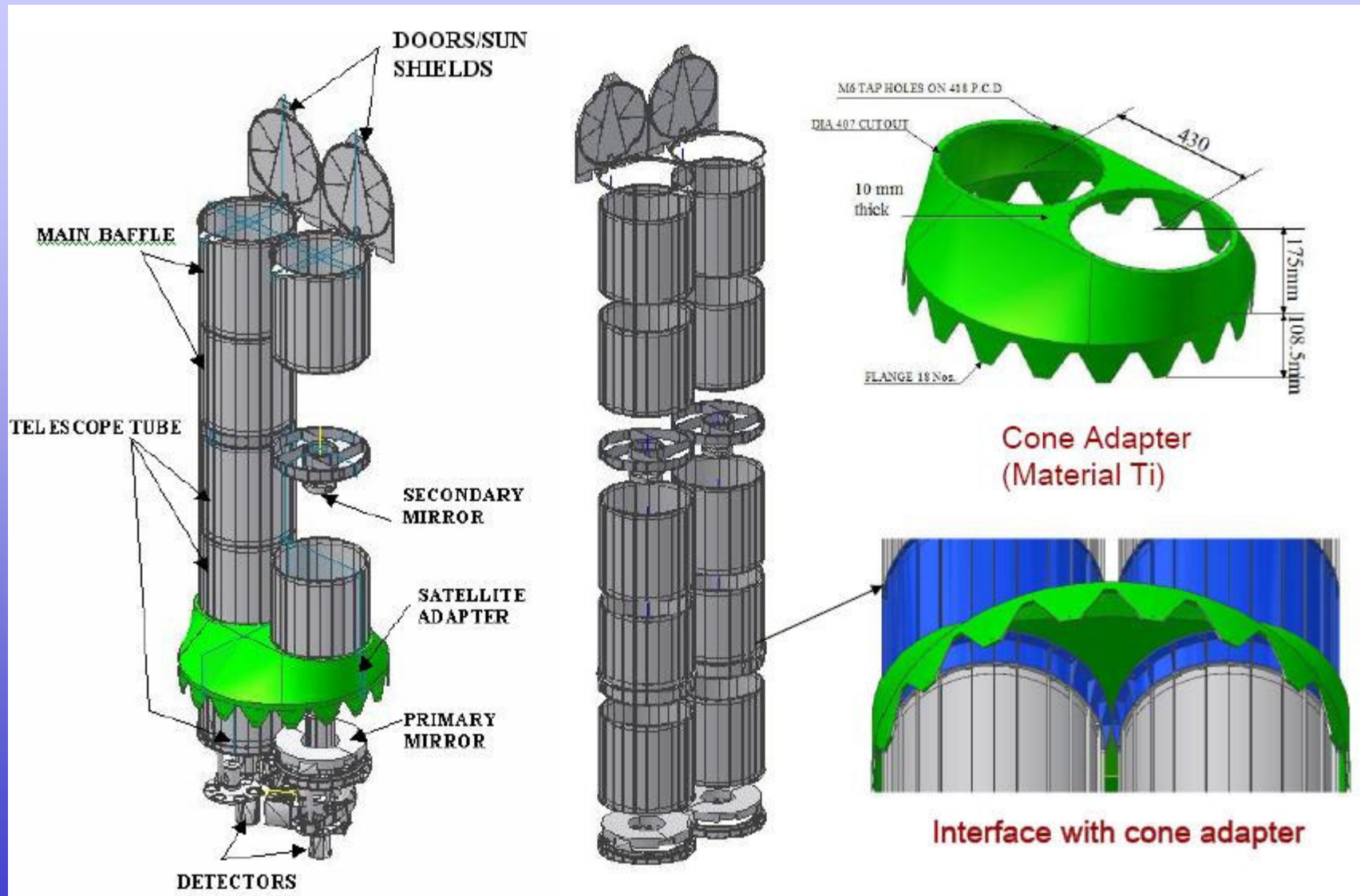
Eff. F = 4756.4 mm \pm 35 mm
Detectors > 39 mm dia.

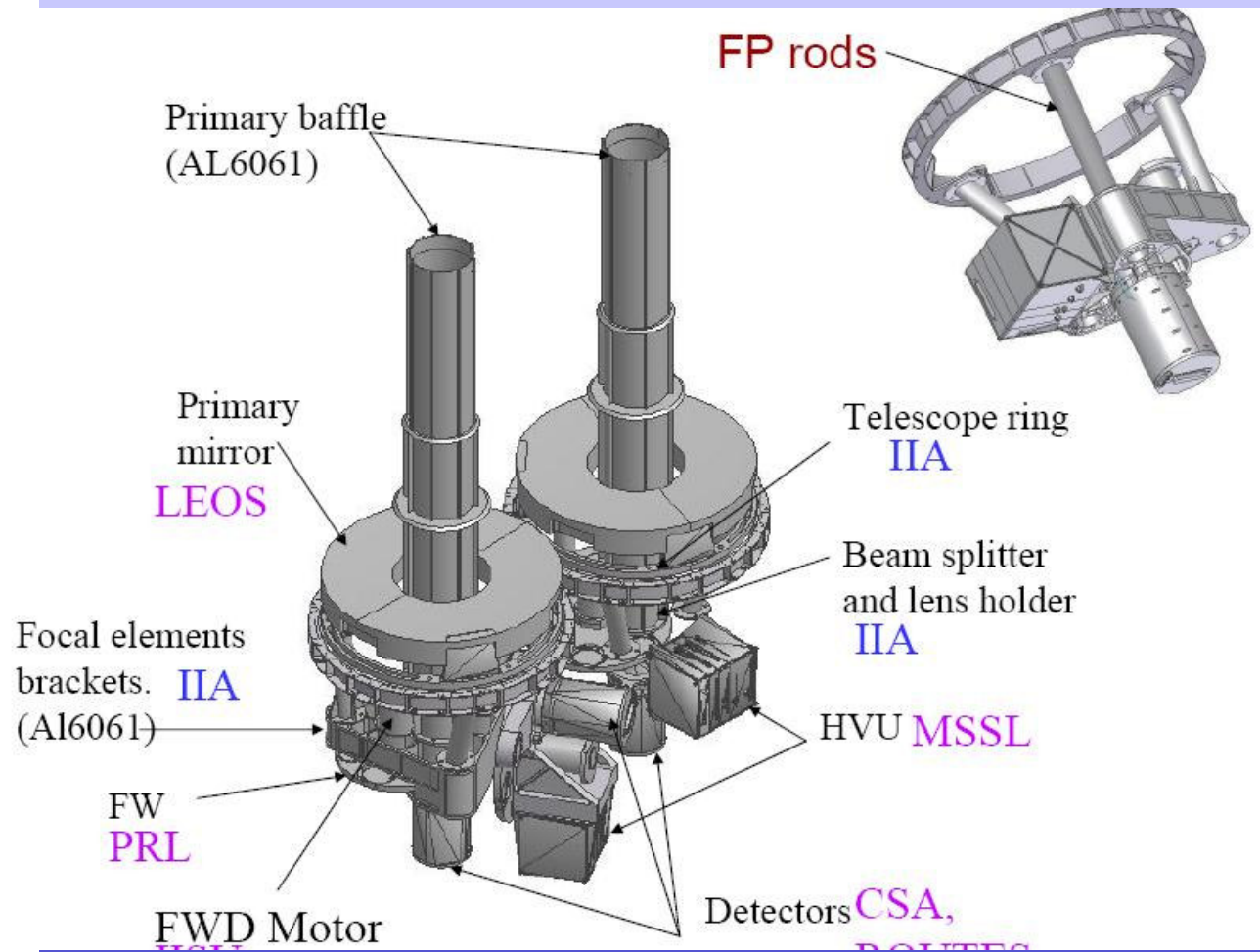
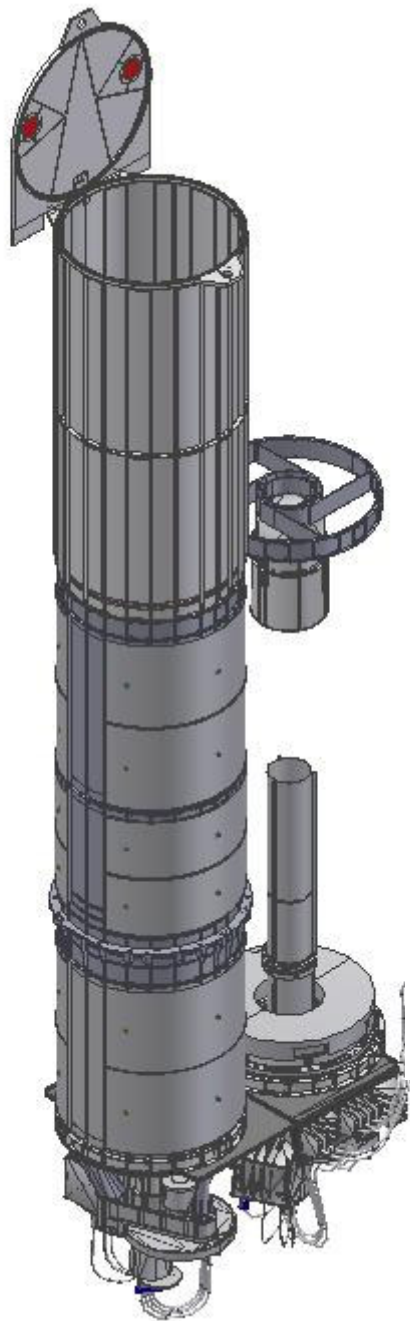


- 1- PRIMARY MIRROR
- 2- SECONDARY MIRROR
- 3- BEAM SPLITTER
- 4- NUV FILTER
- 5- NUV DETECTOR WINDOW
- 6- VIS CORRECTOR
- 7- VIS FILTER
- 8- VIS DETECTOR WINDOW

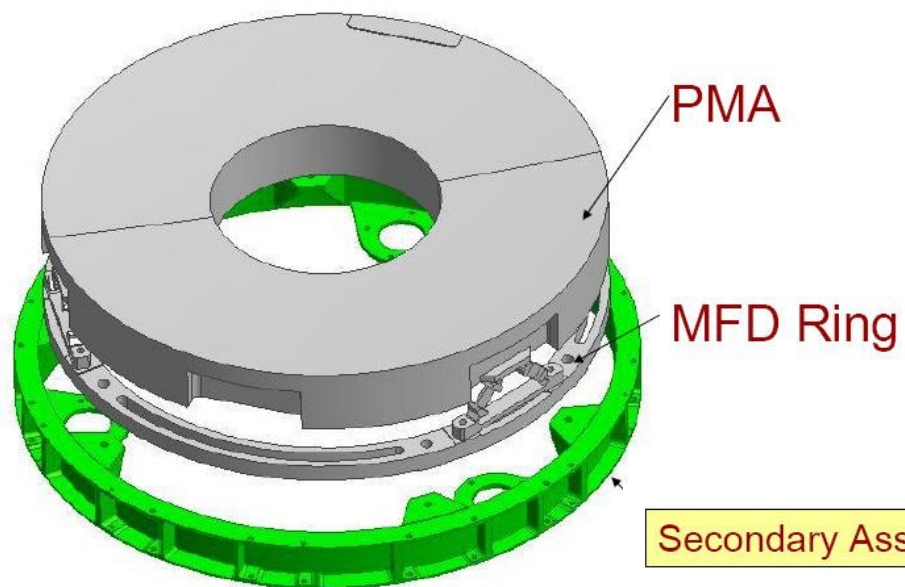


UVIT CONFIGURATION

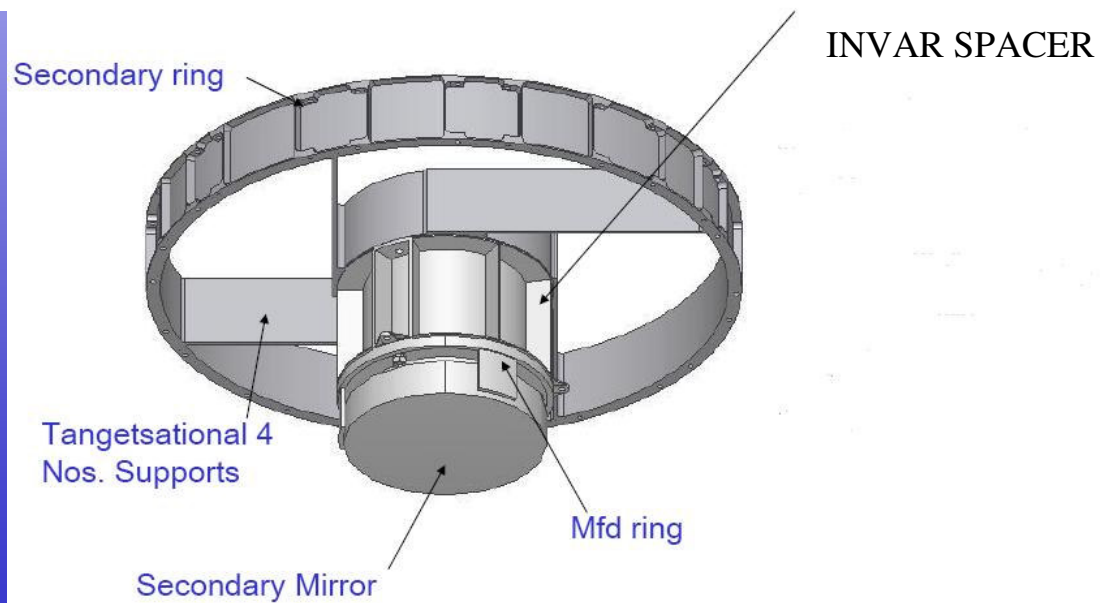




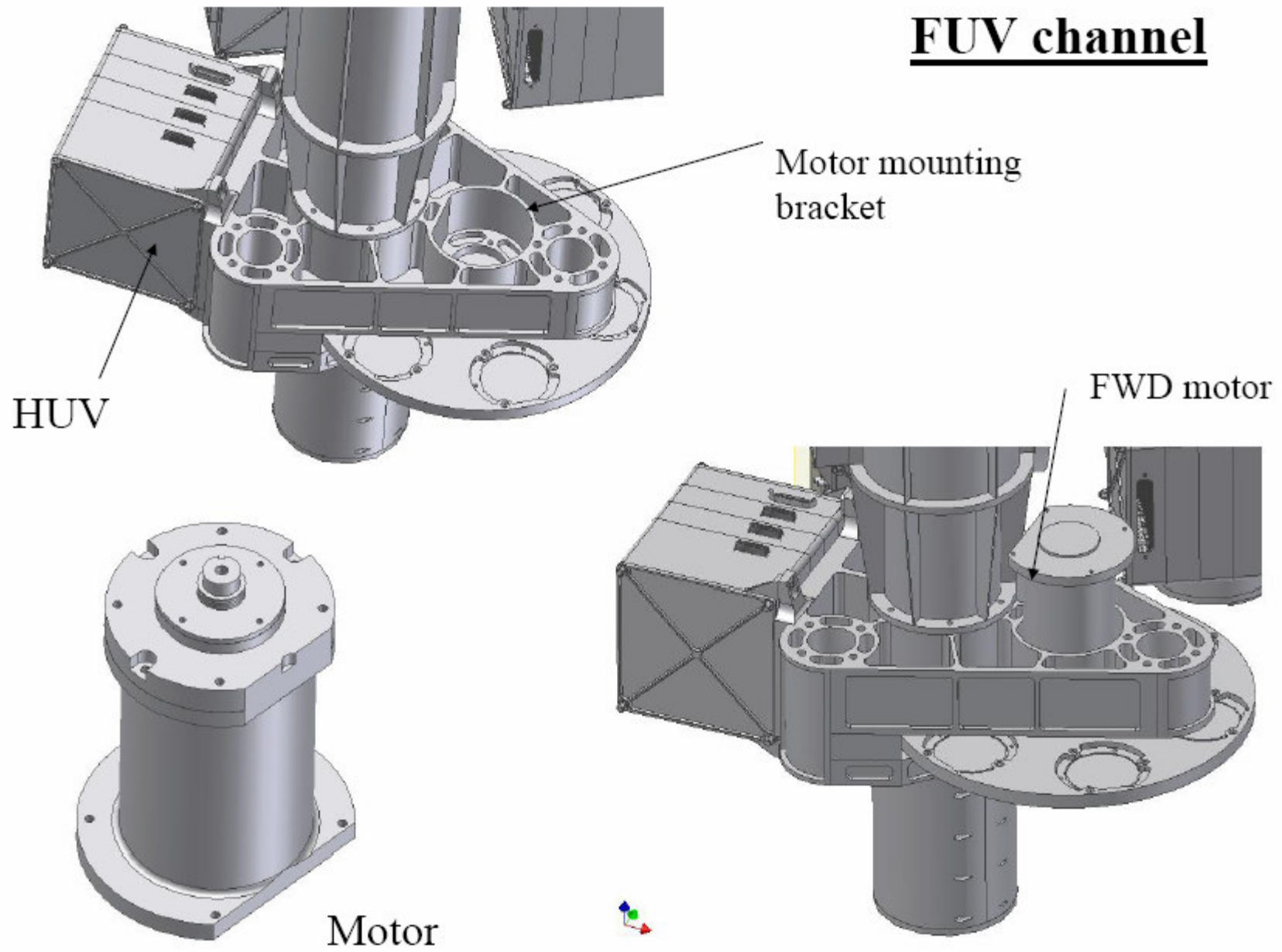
Main optics interface on structure



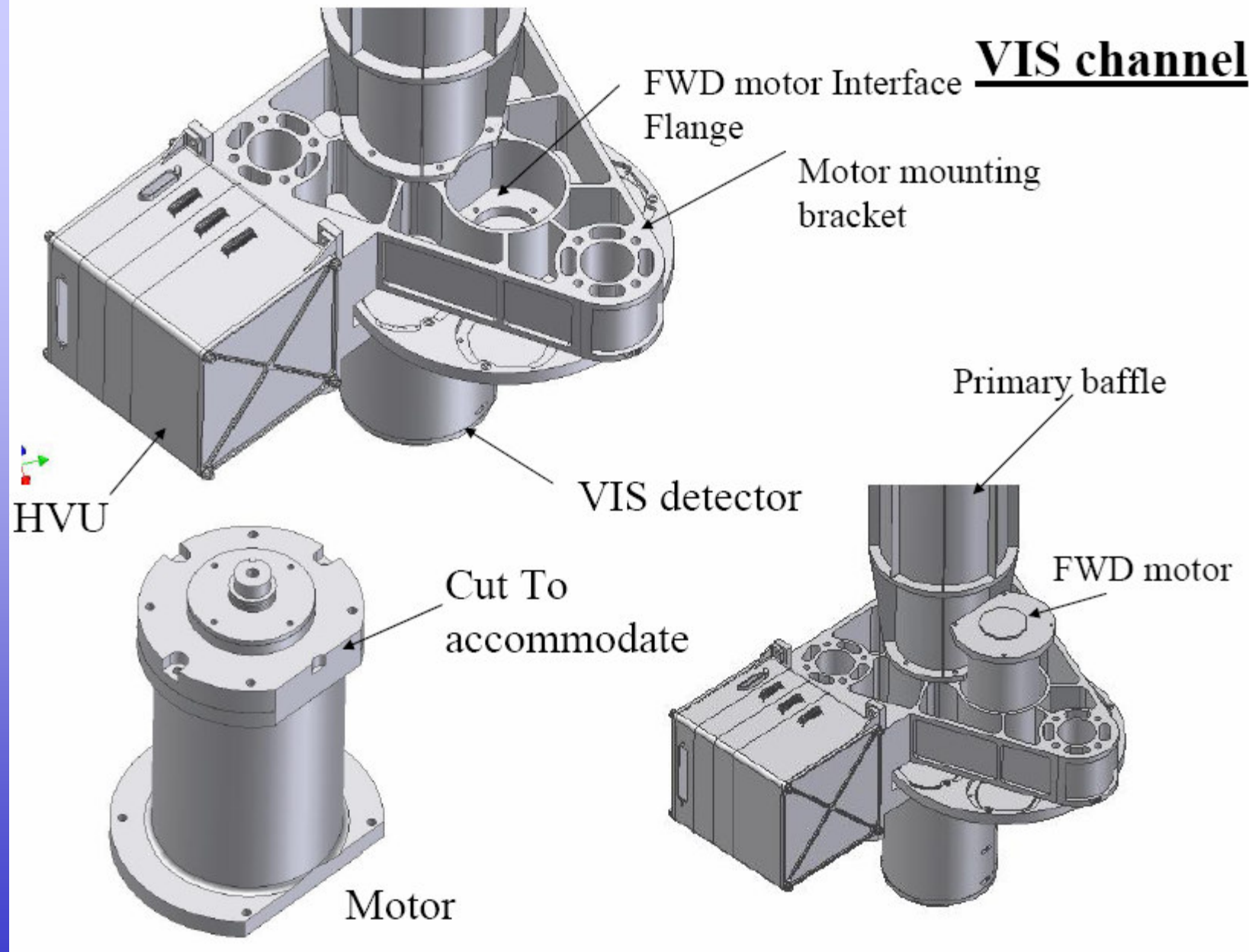
Secondary Assly



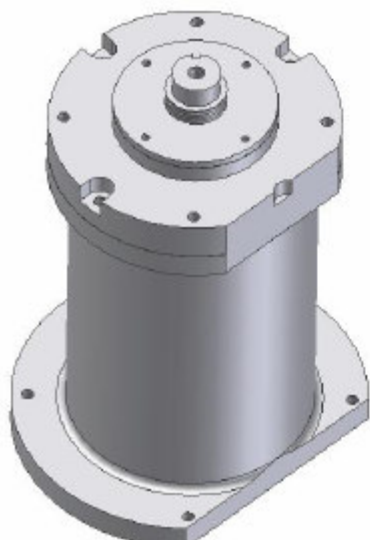
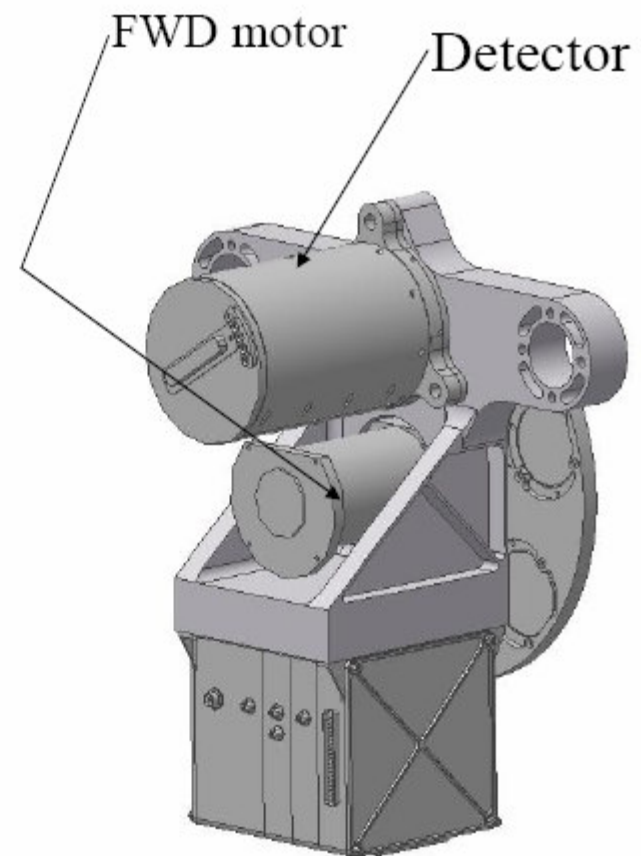
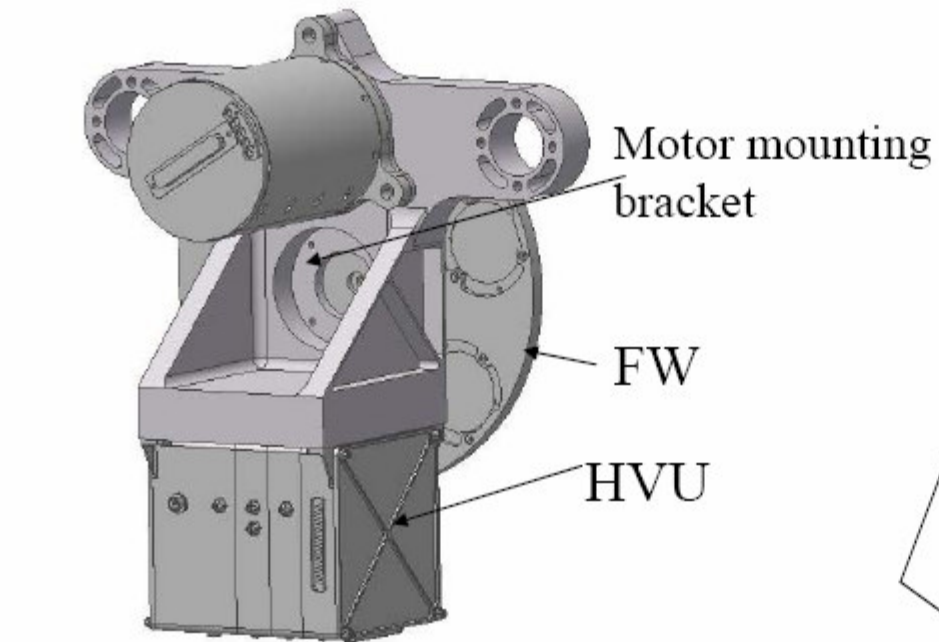
FUV channel



VIS channel



NUV channel



Preliminary Structural analysis results

Analysis goals:

Vibration characteristics that might affect telescope performance, like Global modes > 120 Hz.,

Adequate dynamic envelopes, Local modes > 180 Hz.,

Margins of safety against buckling > 2 ,

Strength margin in metallic plates > 1.5 ,

Strength margins for fasteners > 2

MSC.Patran:2015 24-Dec-05 12:35:15

Fringe: Default, A2, Mode 1: Freq = 28.607, Eigenvectors, Translational, Magnitude, (NON-LAYERED)

Deform: Default, A2, Mode 1: Freq = 28.607, Eigenvectors, Translational

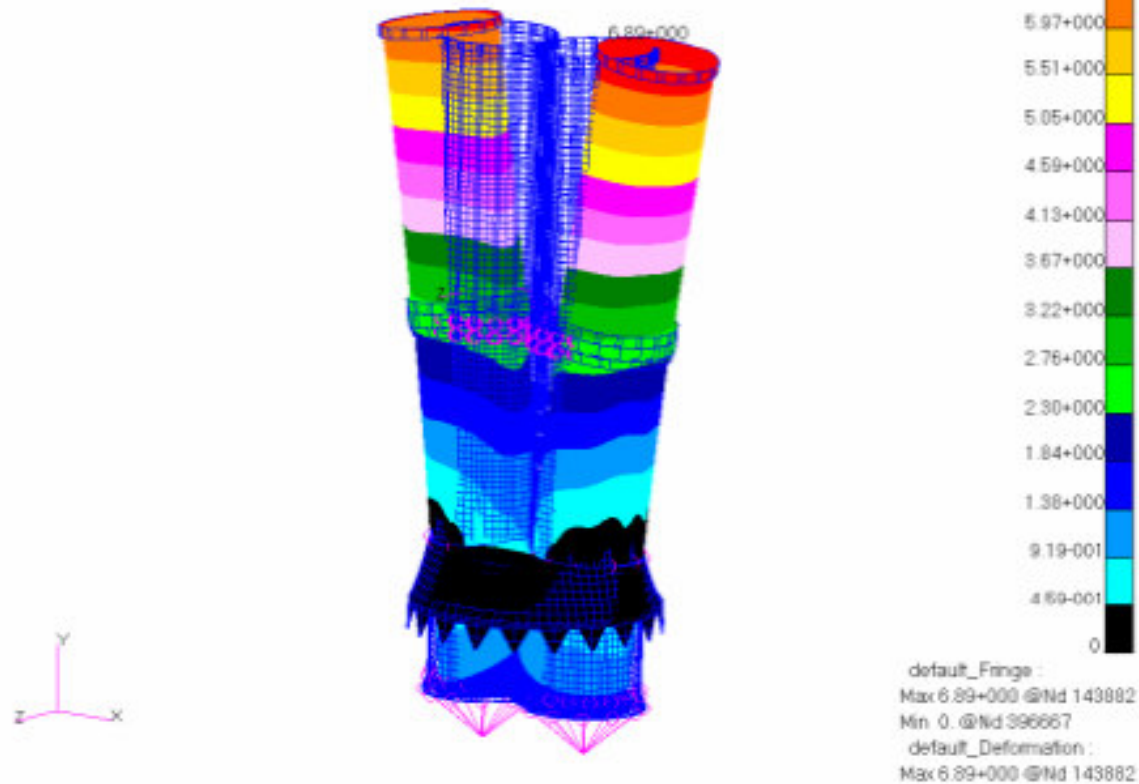


Figure 9 : Fundamental Mode shape Frequency of Baffle-Telescope Tube fixed at Tabs

UNTIED UVIT/TIED
Titanium Conical Adaptor Freq=32.0/40.Hz
Aluminium Conical Adaptor Freq=28.6/37.4Hz
Invar Conical Adaptor Freq=33.6/40.8 Hz

Description	Adapter mass	Telescope (139kg) +adapter Mass (KG)	Frequency (Hz) (untied / tied)
1) Box Frame Adaptor (Invar)	39	178	18/30
2) Honey comb Adapter (100Al /1.6 CFRP)	4	143	21/28
3) cone adaptor			
Aluminium	11	150	28/37
Titanium	19	158	32/40
Invar	33	172	33/40
4) Cylinder Adaptor			
Aluminium	16	155	20/21
Titanium	27	166	23/25
Invar	47	186	25/27

Works completed:

1. Preliminary analysis of structure (system and sub system levels).
2. Mechanical configuration of instrument.
3. Sub system interfaces are frozen(ICD to be generated)
4. Engineering drawings for the long lead items have been completed to go ahead with procurement procedures

On going works/works to be completed:

1. UVIT-Satellite Interface design
2. Detailed design and analysis of focal volume elements.
3. Design for purging provisions,
4. Cable harnessing
3. Generation of engineering drawings.