



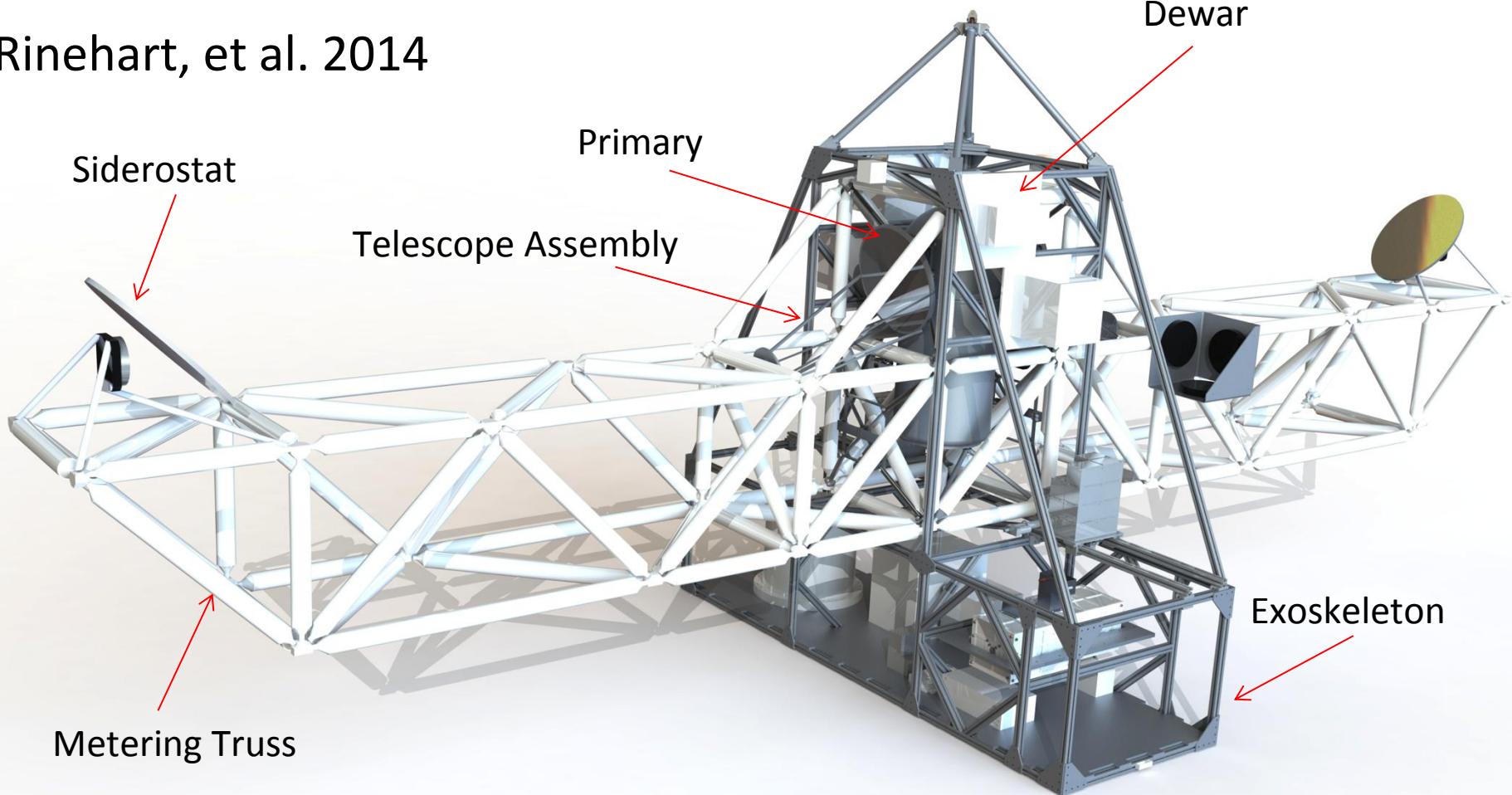
The Balloon Experimental Twin Telescope for Infrared Interferometry (BETTII)

Dr. Stephen Rinehart
NASA's Goddard Space Flight Center
Laboratory for Observational Cosmology

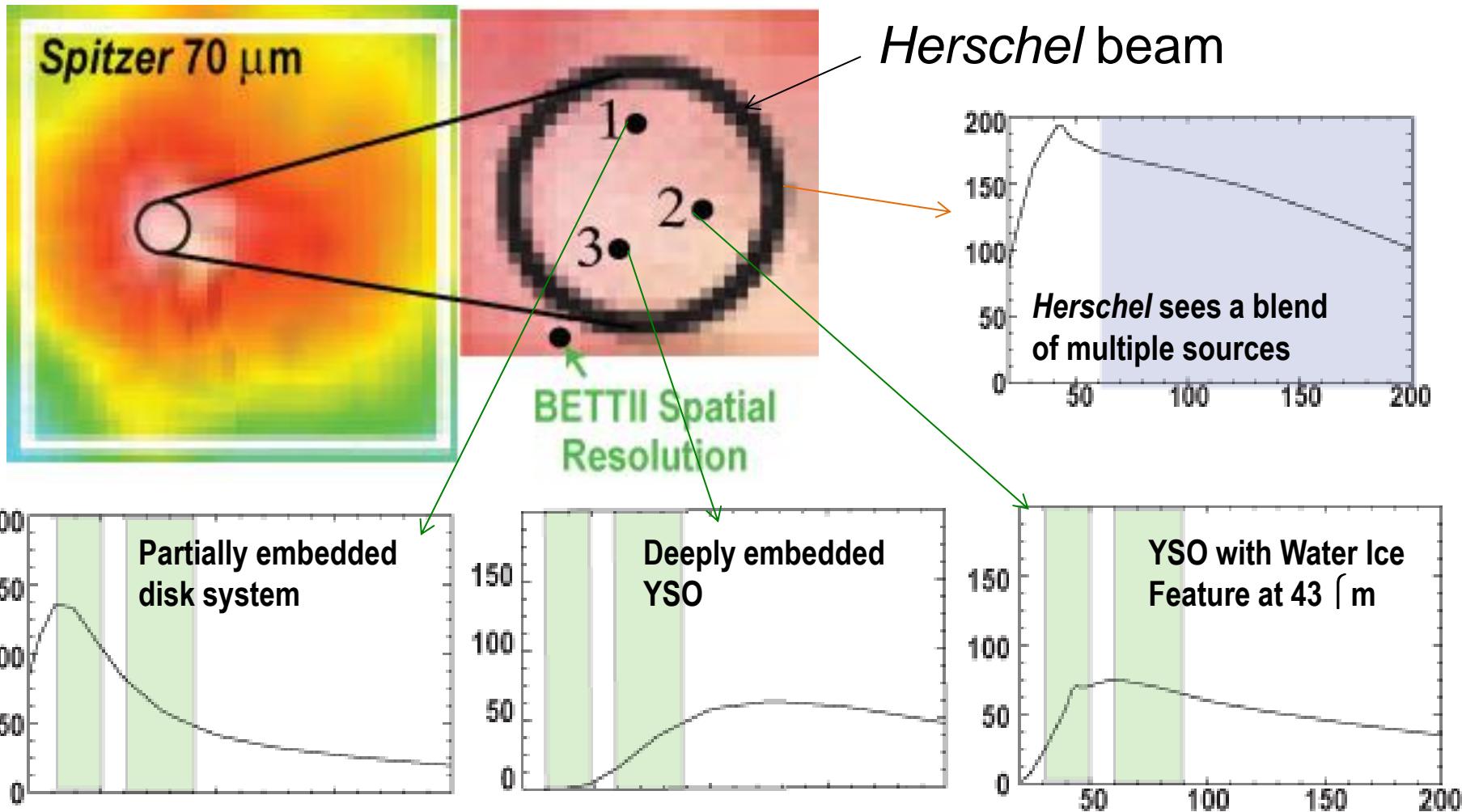
What is BETTII?



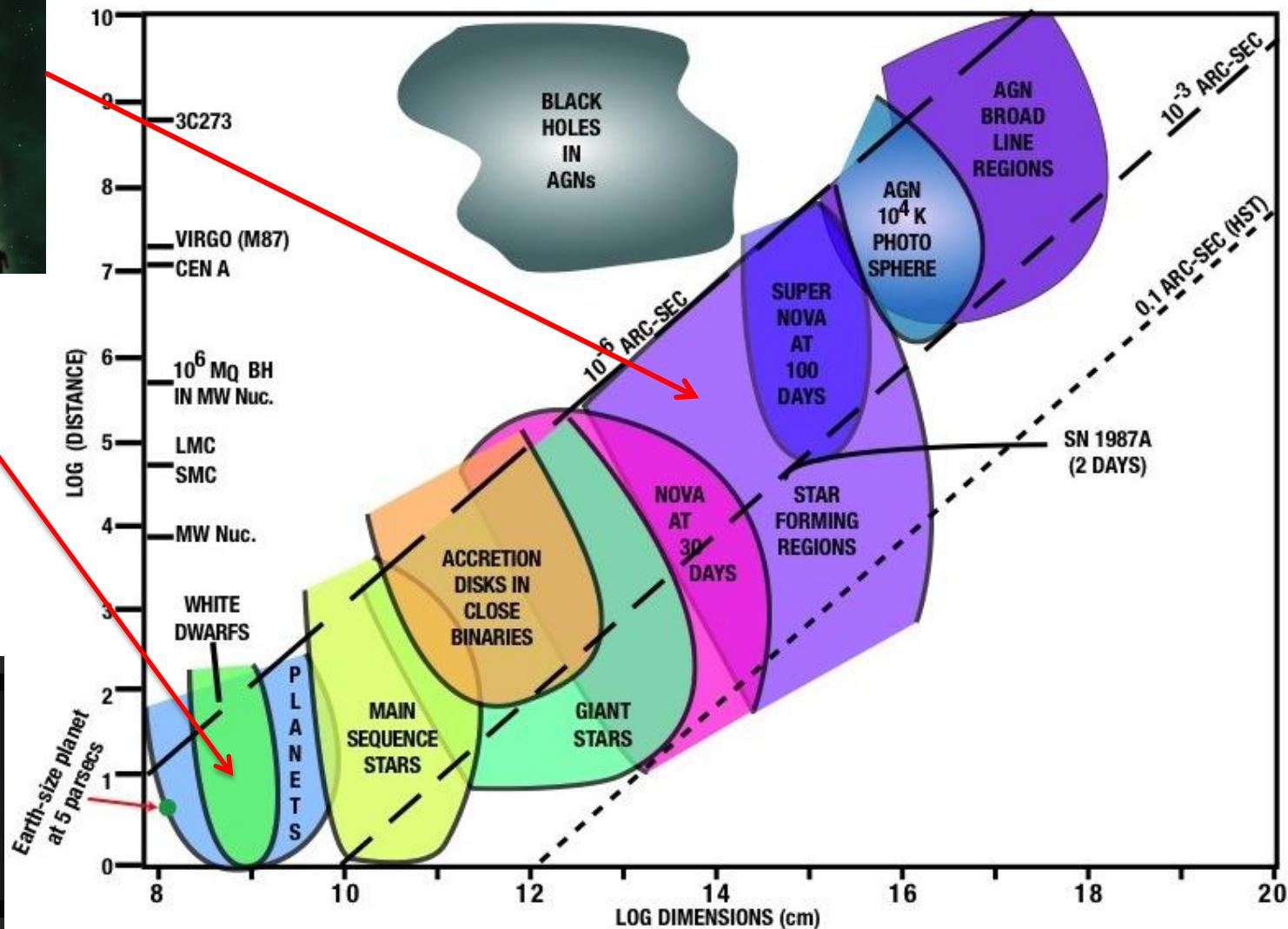
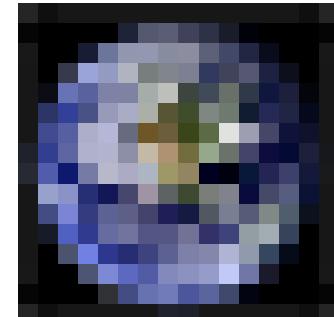
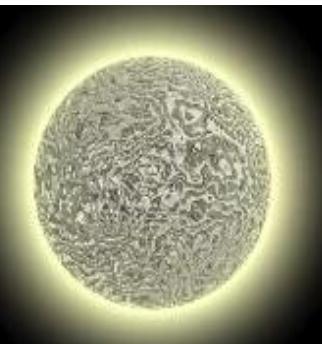
Rinehart, et al. 2014



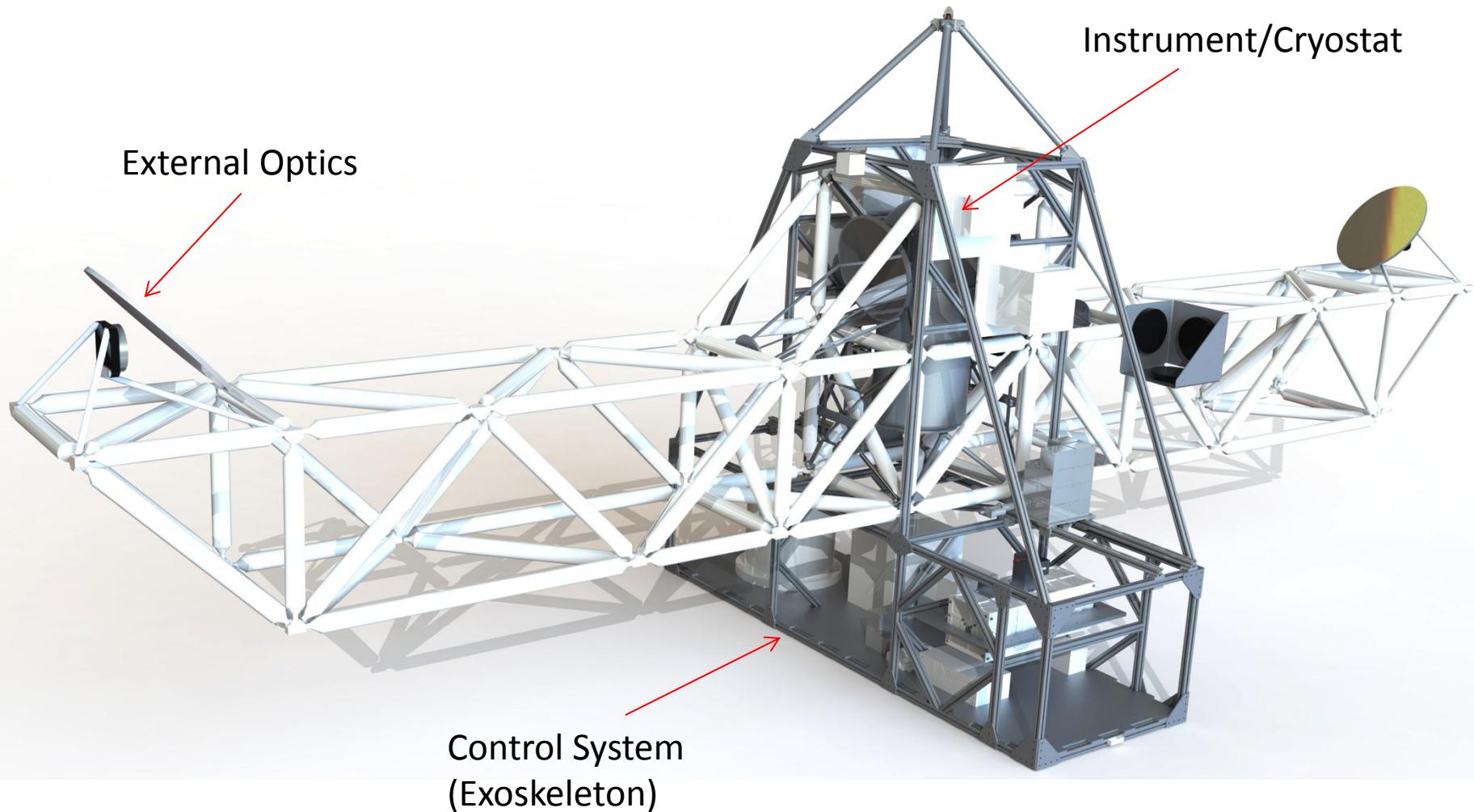
Spectra of Cores



The Bigger Picture



A Tale of Three Systems

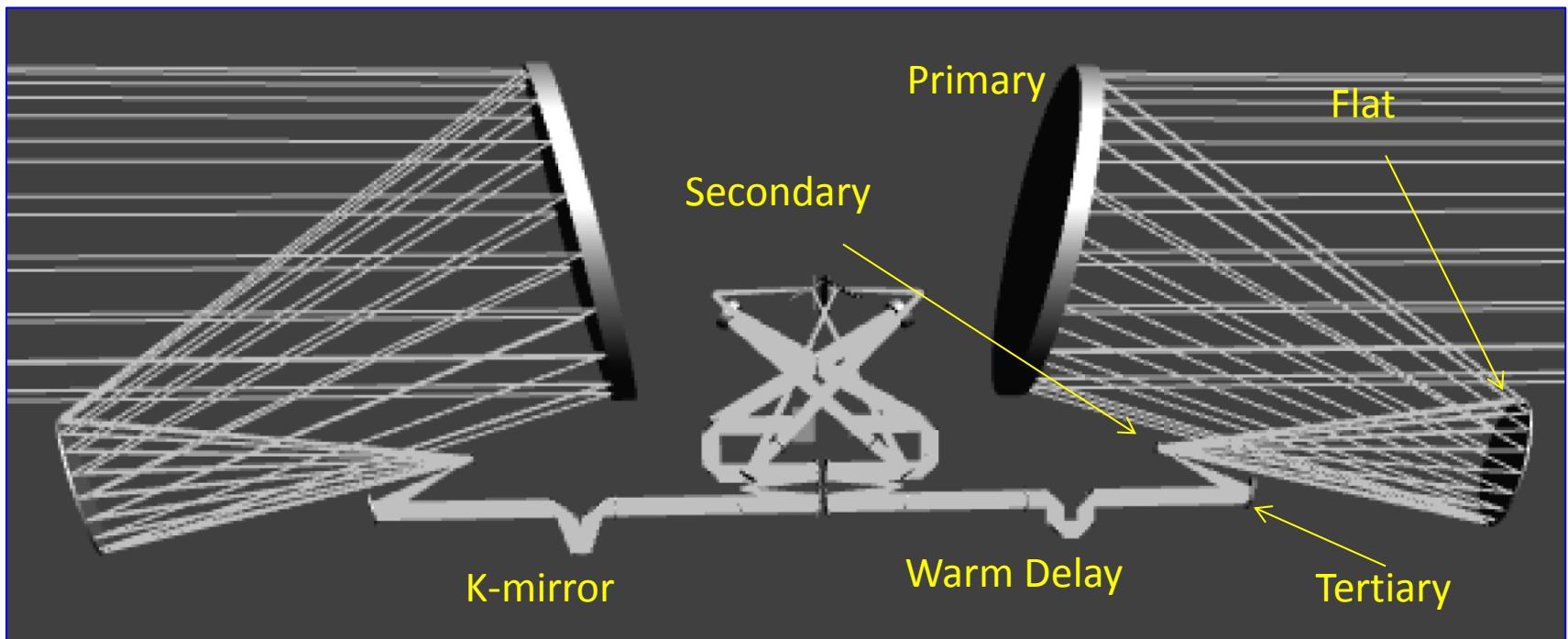
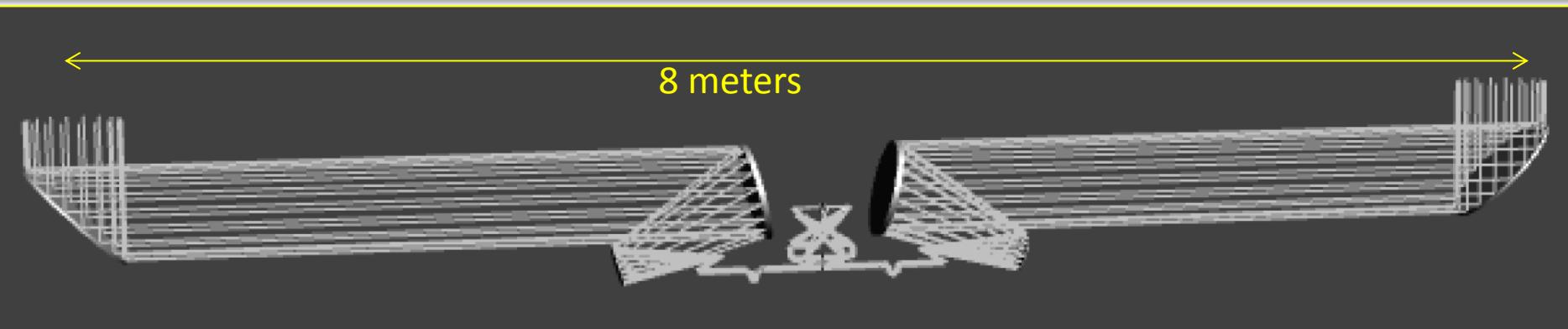


The Completed Truss

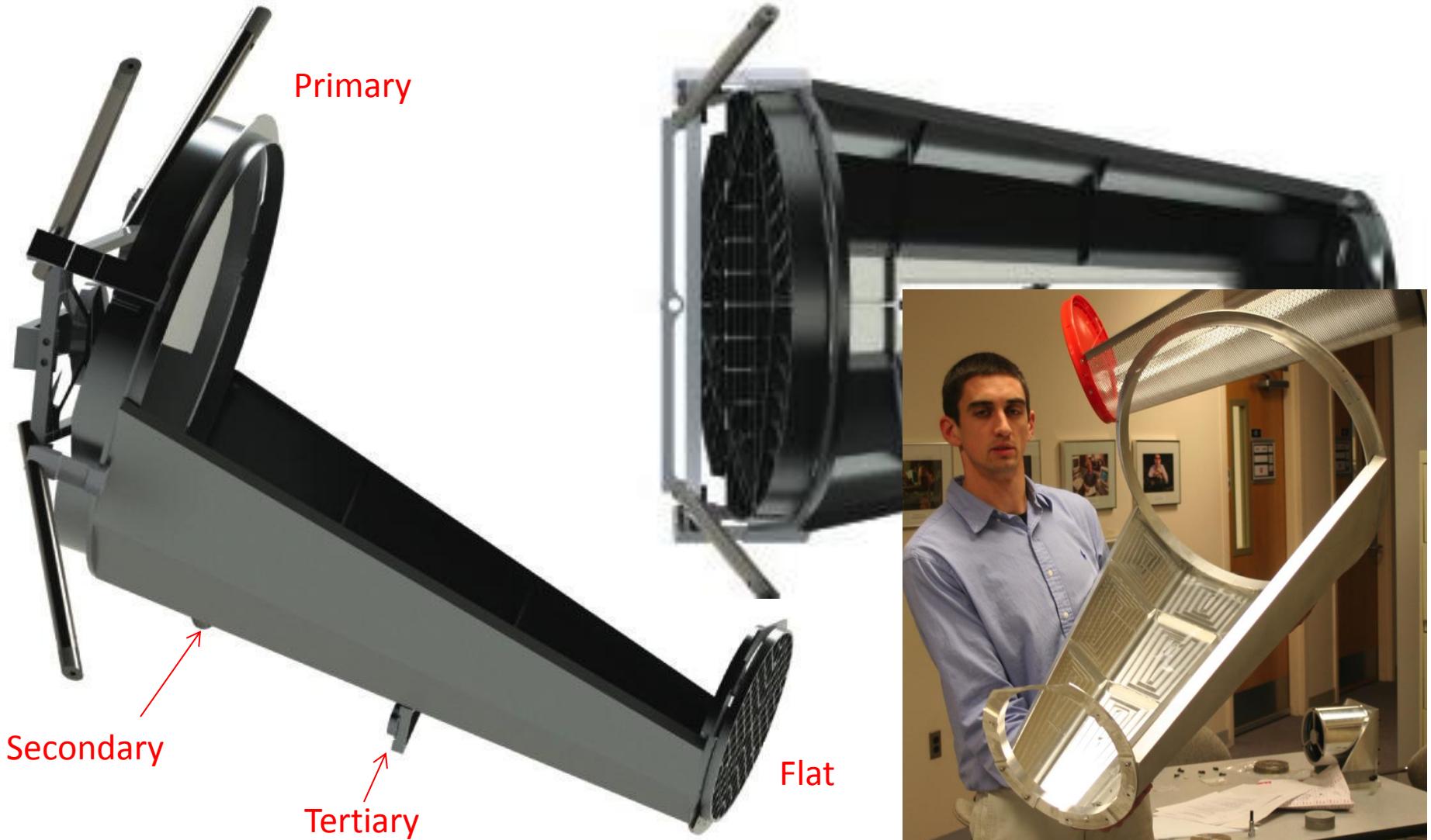


- Light (~70kg)
- Strong – can take a 10g load with factor of 2 margin
- Stiff: first mode at 23.0 Hz.

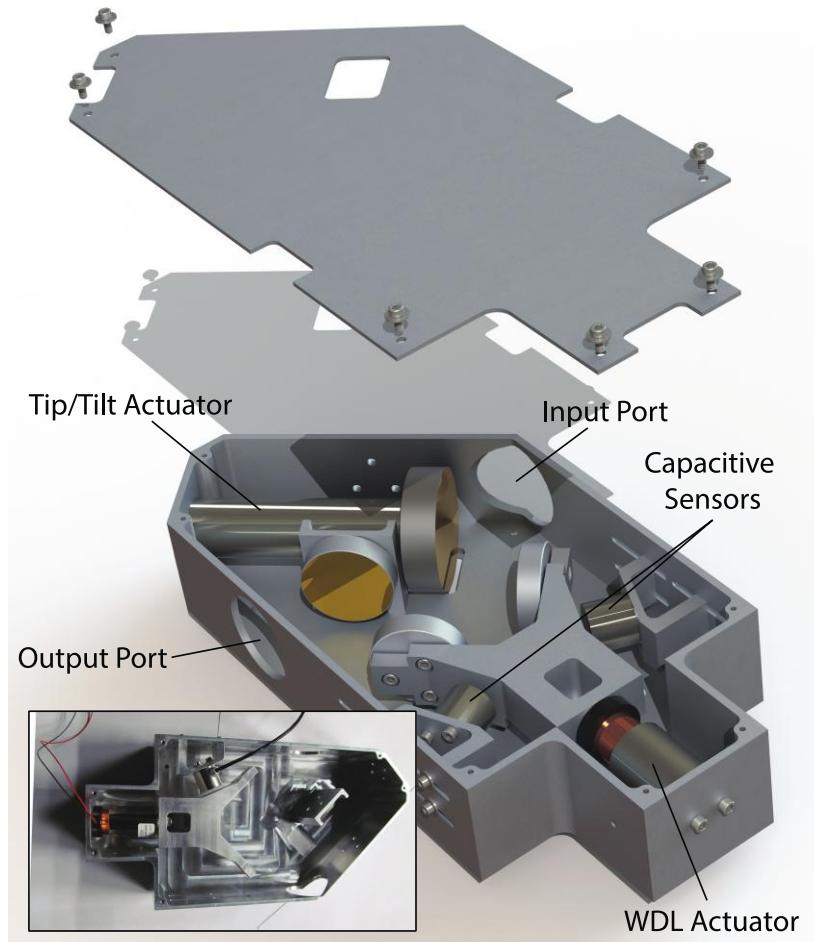
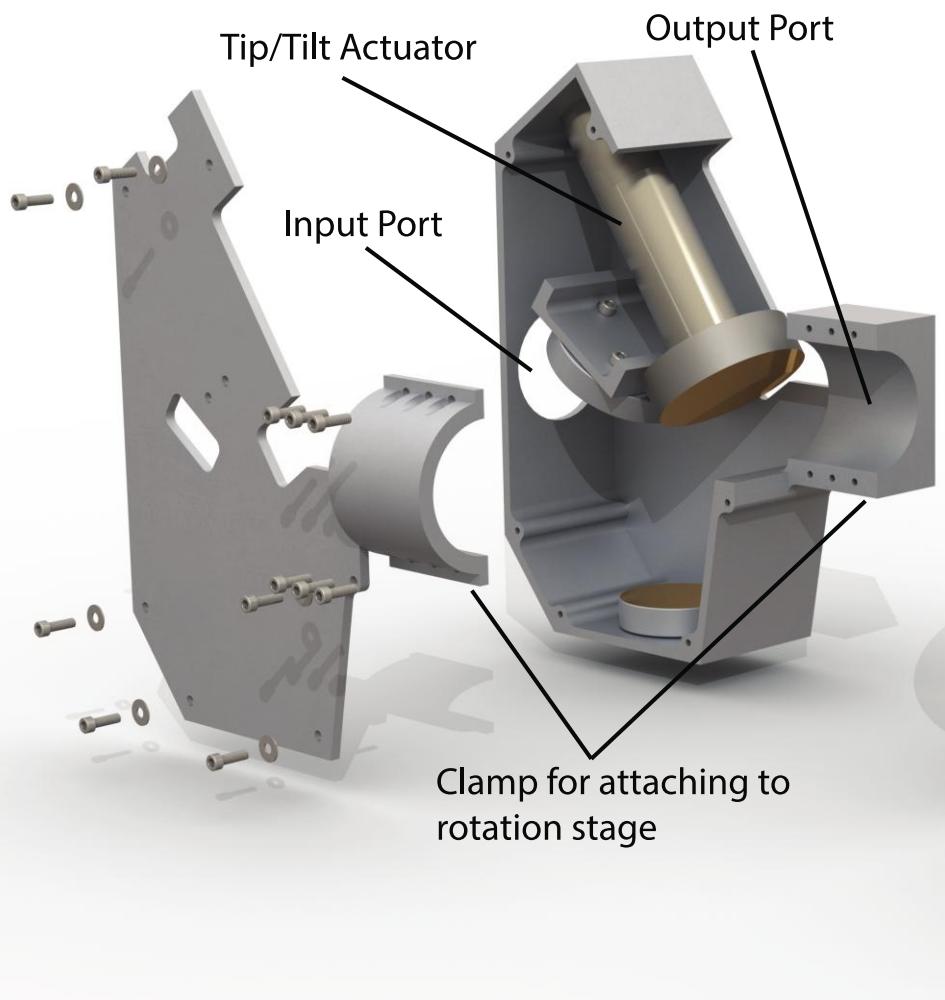
External Optics



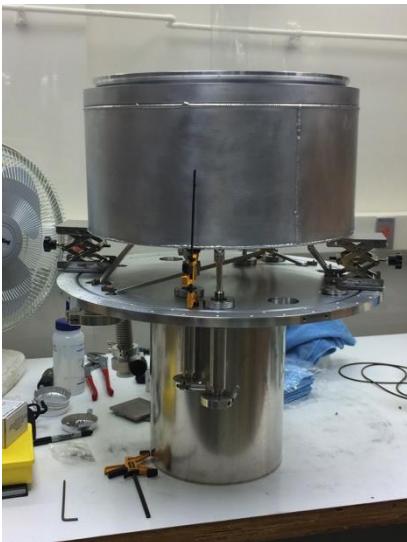
The Telescope Assembly



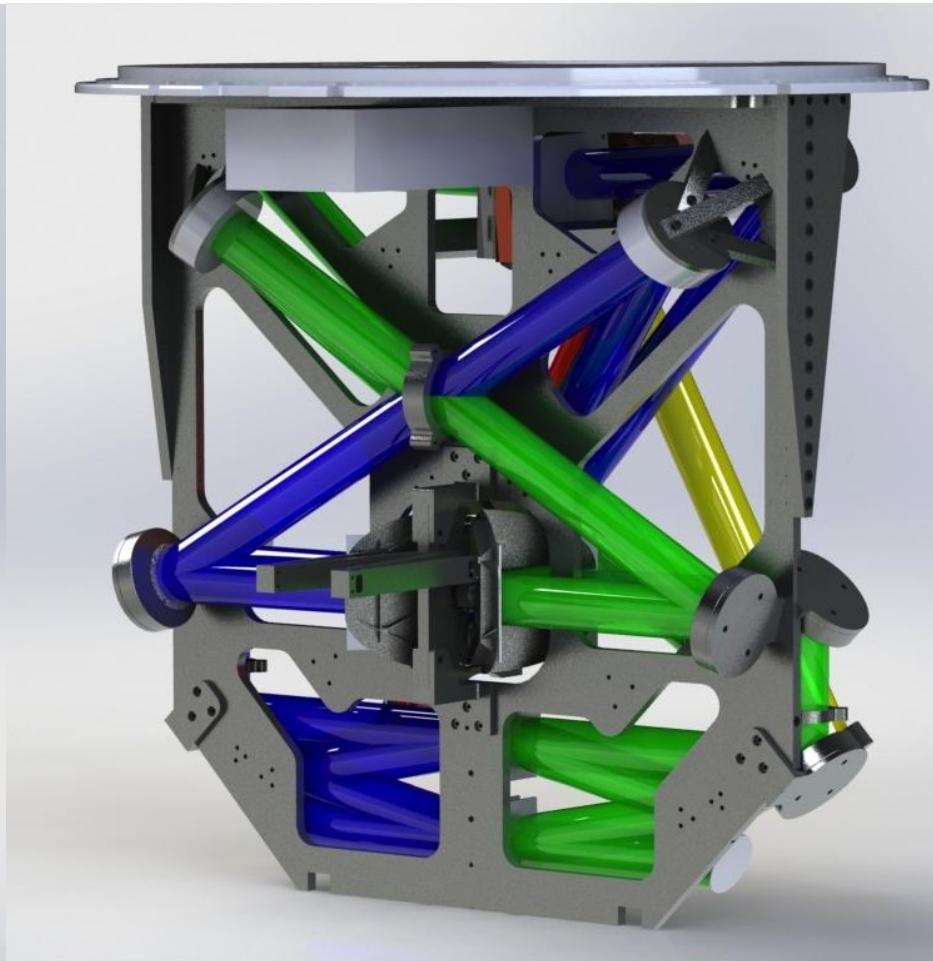
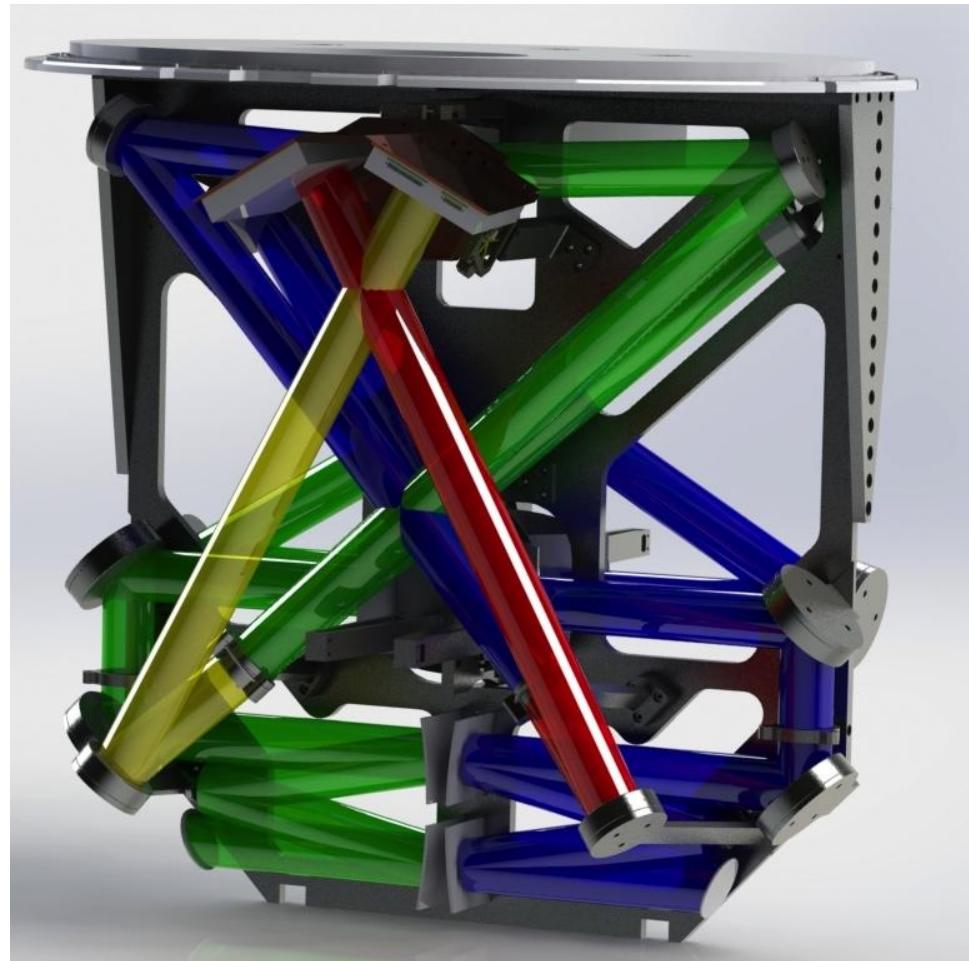
Other elements...



The Instrument



Opto-Mechanical

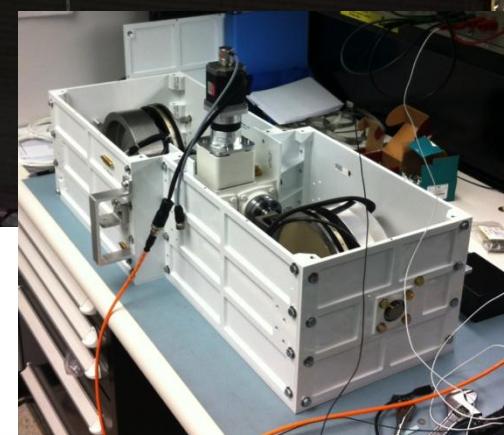


Control Testing



Sensors

Actuator
S



Overall Status



- Proceeding well: upcoming milestones
 - Internal optics installed and aligned by May 2015
 - Detector delivery March/April 2015 (?)
 - Detector testing/characterization through Spring/Summer
 - Delivery of telescope assemblies in March/April 2015
 - Alignment of external optics by June 2015
 - Control system testing ongoing
 - Continues to perform beyond expectations!
- Launch in Fall 2015 unlikely, unfortunately;
2016 should be good...

Thanks



The BETTII Team:

- R. Barry
- D. Benford
- P. Calhoun
- W. Danchi
- **A. Dhabal**
- D. Fixsen
- C. Jhabvala

UK Collaborators:

- P. Ade
- E. Pascale
- R. Juanola-Parramon

Collaborators:

- R. Lyon

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 - S. Maher
 - L. Mundy
 - **M. Rizzo**
 - R. Silverberg
 - J. Staghun
 - T. Veach
-
- M. Griffin
 - L. Spencer
 - G. Savini
-
- A. Kogut
 - J. Mather

Undergraduate Students



And the Far-Infrared Telescope Experiment (FITE) team in Japan (H. Shibai, PI)