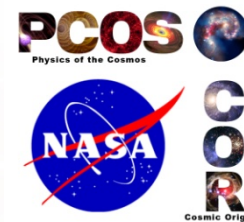


Advanced Technology Large Aperture Space Telescope (ATLAST)



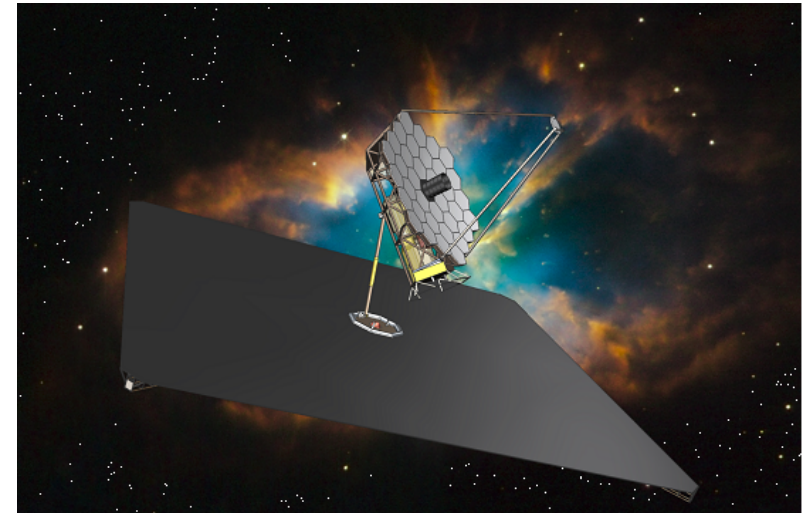
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Description and Objectives:

- Develop compelling UVOIR successor observatory to Hubble (post JWST and AFTA) with added capability to image and spectroscopically characterize Earth-sized exoplanets in the Habitable Zone; large-area and deep-field imaging
- Position ATLAST for the highest priority selection via the 2020 NRC Decadal Survey in Astrophysics.

Key Challenge/Innovation:

- Telescope aperture in the range of 8 to 16 m (Final required aperture size is TBD based on future results of science analyses, completeness calculators, LBTI exozodi measurement results)
- Exoplanet science contrast 10^{-11}
- UV sensitivity to 90 nm



Approach:

- Establish priority science goals ensuring targeting unique science goals separate from HST, JWST, AFTA, and current and future ground based observatories
- Identify and develop enabling technologies. Coordinate with industry and OGA on enabling technologies
- Validate feasibility of large aperture, contrast, stability, and UV sensitivity. Close loop on requirements for components, sub-systems, and system level
- Develop Engineering Design Reference Mission (EDRM) to identify and address cost drivers

Key Collaborators:

- GSFC • MSFC
- JPL • STScI

Development Period:

- March 2013 – Submittal of proposal to NRC Decadal Survey in 2020

Accomplishments and Next Milestones:

- Technology Roadmap completed in May 2014
- Presentations to HQ SMD, OCT, STMD, AAS, COPAG, ExoPAG May-July 2014
- Initiated work on conceptual finite element model to support dynamics stability analysis (May 2014)
- Initiated mirror thermal working group (May 2014)
- Initial conceptual analysis of key parameters (Sept 2014)
 - Mass
 - Thermal control
 - Stability
- Develop conceptual instrument suite (Sept 2014)

Application:

- UVOIR General observatory successor to Hubble Space Telescope (post JWST and AFTA) with capability of identifying and characterizing Earth-sized exoplanets spectroscopically to search for biosignatures; deep UVOIR wide-field imaging

TRLin = <3/4> TRLcurrent est. by PI = <3/4> TRLtarget = <6>