
On-Orbit Assembled Space Telescope—An Approach to Future Ultra-Large Aperture Optical Payload

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Large aperture space telescope is one of the most important means of astronomy research on the origin and evolution of the universe and various celestial bodies. According to the latest report, NASA's most advanced James Webb Space Telescope (JWST) which has an aperture of 6.5m will be launched in 2020. It is estimated that in 2030s, the 10m scale ultra-large aperture space telescope will be developed and launched.

However, a lot of technical problems have to be solved when developing a 10m aperture space telescope, including optical components manufacturing, module integrating, and the limitation of launching vehicle envelope. In order to solve these problems, a space telescope implementation method named "On-Orbit Assembled Space Telescope" is put forward, which is modular designed, modular manufactured, modular launched and will be assembled in space by intelligent space robots.

This talk will present an overview of large aperture space telescopes, the current development of on-orbit assembled space telescope and the future application of this technology. Some of the effort of CIOMP team on this technology will also be presented.

Short Bio:



Shuyan Xu is a professor and a doctoral supervisor at the Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Sciences. As the Chief Designer of several Chinese large aperture optical payloads, he received more than 10 awards including the National Science and Technology Progress Award (special class in 2013, second class in 2008), Outstanding Scientific and Technological Achievement Award of the Chinese Academy of Sciences. He has published

more than 70 papers and trained more than 30 graduate students. Currently, he is leading a team to build a large space telescope for Chinese astronomers, and also leading the development of on-orbit space telescope technology.

