Webb Space Telescope: The First Light Machine

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ABSTRACT

The Webb Space Telescope's 10-year mission is to search for the first luminous objects of the Universe to help answer fundamental questions about how the Universe came to look like it does today, including formation of galaxies and protoplanetary systems. At 6.5 meters in diameter, Webb is the world's largest space telescope. This talk reviews how science objectives drove the Webb architecture, e.g. aperture, wavelength range and operating temperature; provides an overview of the Webb primary mirror technology development; and presents some science results.

BIOGRAPHY

Dr. H. Philip Stahl is a Senior Optical Physicist at NASA Marshall Space Flight Center maturing technologies to design, manufacture, test, and control ultra-stable high-precision large-aperture space telescopes to image exoplanets. Previously, he was responsible for developing mirror technologies for the Webb Space Telescope.

Dr. Stahl is a leading authority in optical systems engineering, optical metrology, and phase-measuring interferometry. Many of the world's largest telescopes have been made with the aid of instantaneous, high-speed and infrared phase-measuring Interferometers developed by him, including the Webb Space Telescope, Keck Observatory, Very Large Telescope, and Gemini telescopes. He discovered and funded the development of the 4D PhaseCAM technology. And he is author of the 'Stahl' parametric cost model for ground and space telescopes.

Dr. Stahl is recipient of a NASA Distinguished Service Medal; a Fellow of SPIE and Optical Society of America; member of International Astronautical Union, American Astronomy Society and IEEE; past Appointed Vice President to the International Commission for Optics and SPIE's 2014 President. He earned his PhD (1985) and MS (1983) in Optical Science at the University of Arizona Optical Sciences Center. He earned a BA in Physics and Mathematics from Wittenberg University in 1979. He is a 1975 graduate of Bellevue High School and 1999 inductee into the Bellevue Halls of Excellence.