

NASA funding opportunities for optical fabrication and testing technology development

H. Philip Stahl

NASA Marshall Space Flight Center, AL 35812
H.Philip.Stahl@nasa.gov

ABSTRACT

Technologies to fabricate and test optical components are required for NASA to accomplish its highest priority science missions. For example, the NRC ASTRO2010 Decadal Survey states that an advanced large-aperture UVOIR telescope is required to enable the next generation of compelling astrophysics and exo-planet science; and that present technology is not mature enough to affordably build and launch any potential UVOIR mission concept. The NRC 2012 NASA Space Technology Roadmaps and Priorities report states that the highest priority technology in which NASA should invest to 'Expand our understanding of Earth and the universe' is a new generation of astronomical telescopes. And, each of the Astrophysics division Program Office Annual Technology Reports (PATR), identifies specific technology needs. NASA has a variety of programs to fund enabling technology development: SBIR (Small Business Innovative Research); the ROSES APRA and SAT programs (Research Opportunities in Space and Earth Science; Astrophysics Research and Analysis program; Strategic Astrophysics Technology program); and several Office of the Chief Technologist (OCT) technology development programs.

BIOGRAPHY

Dr. H. Philip Stahl is a Senior Optical Physicist at NASA MSFC currently leading an effort to mature technologies for a new large aperture telescope to replace Hubble. Previous assignments include Astrophysics Division Deputy Assistant Director for Technology and Mirror Technology lead for the James Webb Space Telescope (JWST). Dr. Stahl co-authored two NASA technology studies: Office of Chief Technologist Science Instruments, Observatories and Sensor Systems Technology Assessment (2011); and Advance Planning and Integration Office Advanced Telescope and Observatory Capability Roadmap (2005). Additionally, he is the originator of the annual "Mirror Technology Days in the Government" workshops. Dr. Stahl is a leading authority in optical metrology, optical engineering, and phase-measuring interferometry. Many of the world's largest telescopes have been fabricated with the aid of high-speed and infrared phase-measuring Interferometers developed by him, including the Keck, VLT and Gemini telescopes. At Raytheon Danbury he was lead optical engineer for the 4 meter LAMP mirror and the Spitzer secondary mirror. Dr. Stahl is a member of OSA and SPIE (Fellow) and 2013 SPIE President-Elect. He is a past ICO Vice President. He earned his PhD in Optical Science at the University of Arizona Optical Sciences Center in 1985.

