

## Abstract

### PRECISION STRUCTURAL AND OPTOMECHANICAL SYSTEMS FOR SPACE INTERFEROMETRY

Robert A. Taskin

Jet Propulsion Laboratory, California Institute of Technology  
Pasadena, CA 91109

Optical and infrared interferometers are expected to provide the next great leap forward in space based astronomy beyond the Hubble Space Telescope. Various systems are envisioned, ranging from relatively compact instruments (2 to 10 meters) tailored for astrometry to large structures (50 - 100 meters) aimed at providing baseline for high resolution imaging. Regardless of the specific architecture, these systems will present unprecedented challenges in the measurement and control of distributed optical surfaces mounted on precision space structures, hence driving the technological state-of-the-art in the areas of deployable structures, vibration isolation and suppression, laser metrology, and alignment and stabilization of optomechanical systems. The Jet Propulsion Laboratory (JPL) has been working for the better part of the last decade to develop and test this technology. Progressing from the derivation and flow-down of requirements through the laboratory demonstration of technology at the component level, the JPL program is now at the point of demonstrating interferometer technology at the system level on a representative ground integration testbed. The talk will describe this work and will discuss plans for future development culminating in technology readiness for space interferometry science missions.