wavefront sensing portfolio

Alignment Insensitive Active Control-of-Curvature Wavefront Sensing and Control Architecture

Description

This technology is a wavefront sensing and control architecture that overcomes the challenging stability requirements of large telescope primary mirrors. The architecture features an active wavefront sensing and control scheme along with methods for measuring the relative positions of the primary to aft optics such as the secondary mirror.

The architecture can be used in spherical primary telescopes where replicated mirrors are used to save cost or in aspheric systems where nulls are needed as part of the wavefront sensor. The Control-of-Curvature sensor also provides a method to test the primary mirror as it is assembled.

Features and Benefits

- This design should enable larger and cheaper telescope architectures needed for future applications.
- This proposed architecture doesn't require extremely good thermal stability on the telescope's primary mirror and thus can be used in any thermal environment and with cheaper materials.
- It can be used in spherical primary telescopes where replicated mirrors are used to save cost or in aspheric systems where nulls are needed as part of the wavefront sensor

Applications

- Low-Cost Telescope Design
- Laser Communications
- LIDAR Systems

For More Information

If you are interested in more information or want to pursue transfer of this technology, GSC-14982-1, please contact:

Enidia Santiago-Arce
Innovative Partnerships Program Office
NASA Goddard Space Flight Center
enidia.santiago-arce-1@nasa.gov
(301)-286-8497

To view Goddard's entire portfolio of wavefront sensing technologies, please visit:
http://ipp.gsfc.nasa.gov/wavefront