wavefront sensing portfolio

Wavefront Sensing Analysis of Grazing Incidence Optical Systems

Description

This technology has the ability to examine out-of-focus images from grazing incidence telescopes (typically operating in the x-ray wavelength, but integrated using optical wavelengths) and determine the lower order deformations. This analysis technique deduces figure errors of grazing incidence x-ray mirror elements using aberrations in the focused image, rather than direct metrology of the mirror element itself. This approach is unique in that determines physical surface errors using a method that requires neither normal incidence access nor contact of the optical surface.

Features and Benefits

- This method allows integration of high angular resolution optics without the use of normal incidence interferometry, which requires direct access to the front surface of each mirror.

- It is applicable to any wavelength being examined, though the range of spatial periods that can be examined depends on what wavelength of light is being imaged, due to diffraction blurring out the focused image.

- The technique has the ability to probe surface figure errors when the mirror is in a system that denies access to the front surface of the mirror, such as during x-ray testing or after it has been integrated into a highly nested structure.

- The software is capable of determining figure errors at the 1 micrometer level for up to 4th order errors.

Applications

Any entity performing integration or testing of grazing incidence optical system may wish to license this technology, either in highly nested structures or in environments that limit normal incidence access.

For More Information

If you are interested in more information or want to pursue transfer of this technology, GSC-15926-1, please contact:

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