Small
Business
Innovation
Research

Multi-Point In-Situ Profiling of Large Aspherics

Bauer Associates, Inc.
Wellesley, MA

INNOVATION

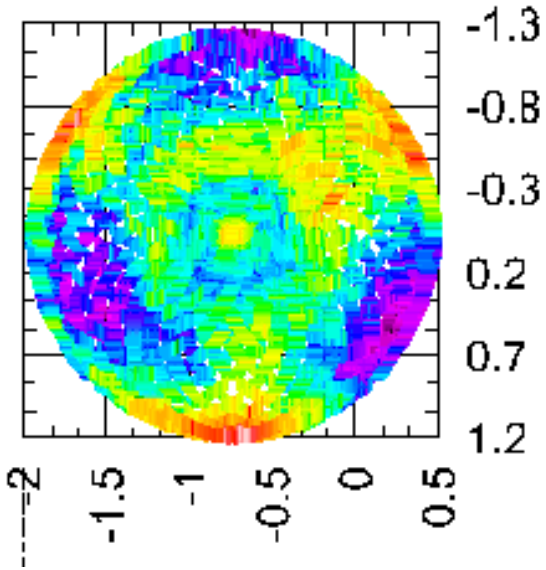
Developed a non-interferometric, optical technique for measuring absolute aspheric shape over the full surface of large mirrors to the nanometer level, without the need for a known reference surfaces.

ACCOMPLISHMENTS

- Conceived of and proved the theory behind a new concept for optically measuring the aspheric shape of large mirror surfaces.
- Developed a working prototype instrument under the SBIR Phase II contract.
- Used the prototype to measure the surface of NASA's HIREX Pathfinder mirror (a sphere with a 200 mm diameter and a 60 meter radius of curvature).

GOVERNMENT/SCIENCE APPLICATIONS

- Preliminary talks are underway to explore the use of the instrument to measure the optics for NASA's Next Generation Space Telescope (NGST).
- A Phase III contract is underway with the Smithsonian Astrophysical Observatory to continue measurements on the HIREX Pathfinder mirror.



Color Contour Surface Map Showing Mirror Features Only a Few Nanometers in Height

COMMERCIALIZATION

- Preliminary talks are underway with makers of large optics to discuss integration of the instrument into their fabrication and metrology facilities.

Goddard Space Flight Center
1996 Phase II, SS5-053, 3/2/01

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