Fabrication of Freeform Optics and Conic Mirror Mandrels

**OptiPro Systems, LLC**
**Ontario, NY**

### INNOVATION

The UltraForm Finishing (6-Axis UFF) and the Ultra Smooth Finishing (USF) platforms developed by OptiPro Systems deterministically polish freeform/conformal mirror shapes made of difficult to manufacture glass, crystal and ceramic materials.

### ACCOMPLISHMENTS

- **2008 OSA – Paul Forman “Excellence in Engineering Award” for first affordable Computer Controlled Optical Machining Center.**
- Optical fabrication companies and prime contractor suppliers are embracing the new technology to cost effectively manufacture axisymmetric domes and optics for newly designed defense systems. The technologies developed under the SBIR contracts have provided a cost effective manufacturing solution for DoE, DoD, MDA and NASA components.
- The integration of the UFF/USF (CNC controlled finishing platforms) and the UltraSurf (Automated non-contact measurement device) provides a deterministic fabrication solution for a wide range of newly developed windows, domes and mirrors.

### COMMERCIALIZATION

- **UltraForm Finishing (UFF) : Asphere, Axisymmetric Dome, Freeform Polisher**
  - Private Sector installations at Universities, Material manufacturers and Precision optical component manufacturers
- **UltraSurf : Non-Contact Asphere, Axisymmetric Dome measurement platform**
  - Private Sector Asphere and Dome Measurement System for production
- Primary market focus is on companies engaging in the optical fabrication and measurement of spherical domes, aspheres, parabolic mirrors, torics and conformal/freeform shapes.
- Private sector investment into the UFF and UltraSurf platforms has been through Beta site partners and production level machine purchases.
- OptiPro Systems, LLC has alliances with material manufacturing firms who require new manufacturing techniques to test and enhance their prototype components and determine the pathway to production level quantities.

### GOVERNMENT/SCIENCE APPLICATIONS

- NASA NNX13CM02C (SBIR 2011-II) (MSFC)
- DOD Contract Numbers W31P4Q-05-C-R048 and W31P4Q-04-C-R101 awarded by the Defense Advanced Research Projects Agency (DARPA); and Contract Numbers N41756-05-M-1390, N68936-06-C-0010 and N68936-09-C-0079 awarded by the Navy Engineering Logistics Office and NAVAIR.
- Toric, Acylinder and other freeform geometric shapes made from Si and SiC.
- Freeform reflective mirror applications for the Department of Energy
- Materials Include: Spinel, ALON™, CeraLumina™, Si, SiC, ceramics, Fused Quartz & standard optical glasses

Date: June 1, 2015

OptiPro Systems, LLC
6368 Dean Parkway
Ontario, NY 14519
David Mohring (585) 265-0160