

Optomechanical Modeling in Mechanical Design

Clark Briggs

Jet Propulsion Laboratory

California Institute of Technology

Clark.Briggs@jpl.nasa.gov

(818) 393-0734

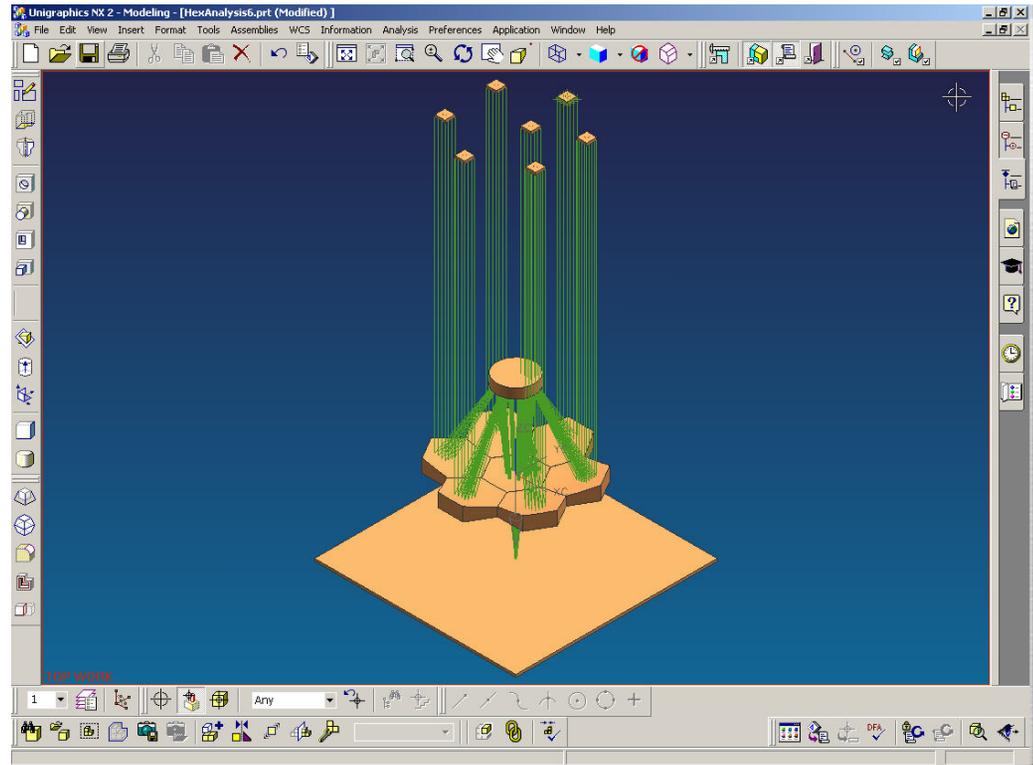
Premium Partners:



Microsoft

At A Glance

- Trace rays through mechanical model of optical system
- Evaluate mechanical capture of prescription
- Assess impact of mechanical alignment

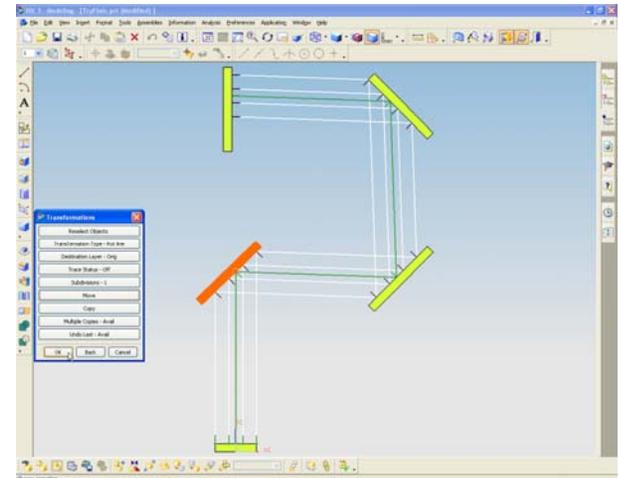
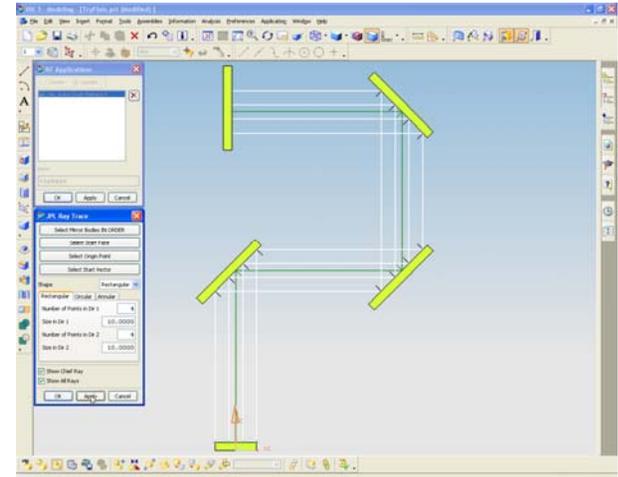


Overview

- Geometric optics
- Reflective mirrors
 - No refractive lenses, no Index of Refraction
- Uses system design model
- Knowledge fusion application
 - Includes KF application to build mirror body from optical prescription
- Benefits not available before
 - Check the solid model to be used to fab the mirror
 - Develop alignment procedures in mechanical terms

Benefits

- Check prescription of solid models to be used for fabrication
- Check nominal and perturbed alignment
- Check mechanical degrees of freedom
- Check baffle or mask positioning
- Establish alignment procedures



For Further Information

- The presentation material is completed and in clearance processing.
- Contact the author for further information.
- Post conference proceedings will contain the complete presentation.

Acknowledgements

This work was performed at the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

The author thanks Mr. Taylor Anderson of UGS, NX Product Manager for Knowledge Fusion, for his assistance in building the JPL Ray Trace Application. In addition, the JPL Mirror Generator Application was built by Mr. Anderson.

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not constitute or imply its endorsement by the United States Government or the Jet Propulsion Laboratory, California Institute of Technology.