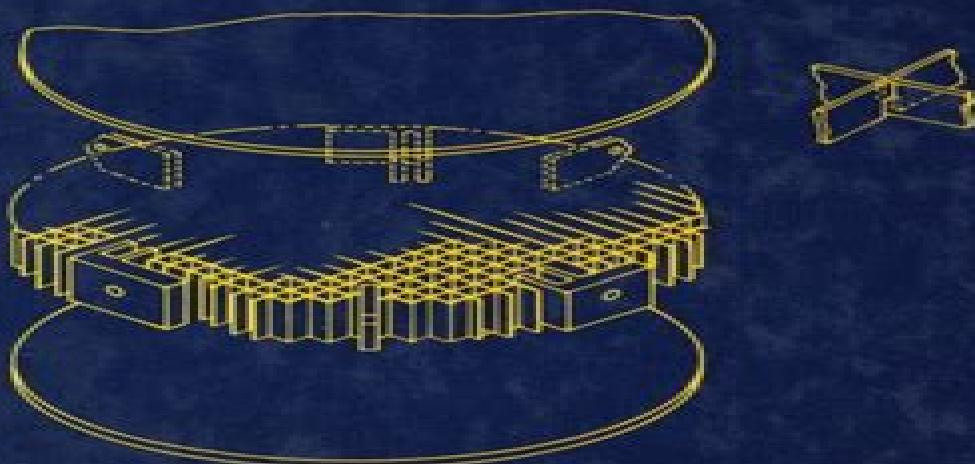


# OPTO-MECHANICAL SYSTEMS DESIGN



PAUL R. YODER, JR.

# Opto Mechanical Systems Design

**Paul Yoder, Daniel Vukobratovich**

## **Opto Mechanical Systems Design:**

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*Opto-Mechanical Systems Design, Third Edition* Paul R. Yoder, Jr.,2005-12-09 After nearly two decades Paul Yoder s Opto Mechanical Systems Design continues to be the reference of choice for professionals fusing optical and mechanical components into advanced high performance instruments Yoder s authoritative systems oriented coverage and down to earth approach fosters the deep seated knowledge needed to continually push the field to new limits Extensively revised and updated this Third Edition reflects the massive growth and advancement achieved in the field over the past few years It systematically examines the building blocks for new optical instruments and details new tools and techniques for designing building and testing optical systems hardware The book includes revised broad based standards equations for designing 26 types of prisms and lens mirror and prism mounts state of the art examples of designs for large mirrors and their mounts and an expanded chapter that consolidates information on the design and mounting of metal mirrors New sections include special protective coatings manufacturing techniques mounting lenses on flexures and techniques for aligning lenses and lens systems in addition to two new chapters one on designing and mounting small mirrors gratings and pellicles the other on analysis methods including damage and failure analysis Whether you are designing a high resolution projector or the most sensitive space telescope Opto Mechanical Systems Design Third Edition supplies the tools you need in a single concise reference

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pertaining primarily to optics smaller than 50 cm aperture It summarizes the opto mechanical design process considers pertinent environmental influences lists and updates key parameters for materials illustrates numerous ways for mounting individual and multiple lenses shows typical ways to design and mount windows and similar components details designs for many types of prisms and techniques for mounting them suggests designs and mounting techniques for small mirrors explains the benefits of kinematic design and uses of flexures describes how to analyze various types of opto mechanical interfaces demonstrates how the strength of glass can be determined and how to estimate stress generated in optics and explains how changing temperature affects opto mechanical assemblies The second volume Design and Analysis of Large Mirrors and Structures concentrates on the design and mounting of significantly larger optics and their structures including a new and important topic detailed consideration of factors affecting large mirror performance The book details how to design and fabricate very large single substrate segmented and lightweight mirrors describes mountings for large mirrors with their optical axes in vertical horizontal and variable orientations indicates how metal and composite mirrors differ from ones made of glass explains key design aspects of optical instrument structural design and takes a look at an emerging technology the evolution and applications of silicon and silicon carbide in mirrors and other types of components for optical applications

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