



Diffractive Optics: Design, Fabrication, and Test (SPIE Tutorial Texts in Optical Engineering Vol. TT62)

By Donald C. O'Shea, Thomas J. Suleski, Alan D. Kathman, Dennis W. Prather

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This book provides the reader with the broad range of materials that were discussed in a series of short courses presented at Georgia Tech on the design, fabrication, and testing of diffractive optical elements (DOEs). Although there are not long derivations or detailed methods for specific engineering calculations, the reader should be familiar and comfortable with basic computational techniques. This text is not a "cookbook" for producing DOEs, but it should provide readers with sufficient information to assess whether this technology would benefit their work, and to understand the requirements for using the concepts and techniques presented by the authors.

Contents

- Preface
- Introduction
- Scalar Diffraction Theory
- Electromagnetic Analysis of Diffractive Optical Elements
- Diffractive Lens Design
- Design of Diffraction Gratings
- Making a DOE
- Photolithographic Fabrication of Diffractive Optical Elements
- Survey of Fabrication Techniques for Diffractive Optical Elements
- Testing Diffractive Optical Elements
- Application of Diffractive Optics to Lens Design
- Additional Applications of Diffractive Optical Elements
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