CONTENTS

	Page
Preface	
Integrated photoelasticity and its applications	
by H. Aben	1
Preface	
1. Optical equations of three-dimensional photoelasticity	
2. Optical theory of nonhomogeneous photoelastic media	9
3. Plates under bending. Magnetophotoelasticity	17
4. Shells of revolution. Cylindrical bodies. Fibers	25
5. Axisymmetric states of stress	34
6. Cubic single crystals of cylindrical and prismatic form	12
7. Integrated photoelasticity as optical tomography of the stress field	51
References	
Modern nondestructive methods of coherent light photoelasticity with applications	
in two and three-dimensional problems in statics, contact stresses, fracture mechanics	
and dynamic impulse	
by A. Lagarde	
Preface	63
Chapter 1 — Preliminaries	64
Chapter 2 — Optical parameters for three-dimensional photoelasticity by mechanical	
or optical slicing	77
Chapter 3 — Punctual methods in plane photoelasticity. Application to contact	
mechanics	94
Chapter 4 — A three-dimensional point photoelastic method of optical slicing	
with applications	121
Chapter 5 — A three-dimensional whole-field photoelastic method of optical slicing	
with application to fracture mechanics	145
Chapter 6 - Dynamic interferometric photoelasticity	176
Chapter 7 — Dynamic holographic photoelasticity. Application	199
Chapter 8 — Punctual point measurement methods in dynamic plane photoelasticity.	223
Dynamic photoelasticity and its application to stress wave propagation, fracture	
mechanics and fracture control	
by J.W. Dally	247
Chapter 1 — Recording systems for dynamic photomechanics	248
Chapter 2 — Fidelity of dynamic recording methods	264
Chapter 3 — Data analysis in dynamic photoelasticity	278
Chapter 4 — Laboratory methods for stress-wave and fracture experiments	291
Change 5 Application of dynamic photoelecticity to stress wave propagation	304

Chapter 6 — Fracture mechanics	
Chapter 7 — Photoelastic data analysis methods for fracture	343
Chapter 8 — Characterization of dynamic crack propagation	355
Chapter 9 — Control of explosively induced fracture	367
Chapter 10 — Crack initiation and crack arrest	383
Chapter 11 — Crack propagation and branching	
The shadow optical method of caustics	
by J.F. Kalthoff	407
List of symbols	
1. Introduction	
2. Physical principle	
3. Quantitative description of shadow optical images	
4. Crack tip caustics	
5. Experimental techniques	
6. Applications	
7. Summary and discussion	
8. References	
9. Appendix — Cranz-Schardin high speed camera. Recent developments	
by S. Winkler	510
References	