

Contents

Contributors	v
Preface	vii

Part One PREPARATION OF **THIN** FILMS

1. Vacuum Evaporation	1-3
2. High-vacuum Technology	2-1
3. The Nature of Physical Sputtering	3-1
4. Application of Sputtering to the Deposition of Films	4-1
5. The Deposition of Thin Films by Chemical Methods	5-1
6. Thin Film Substrates	6-1
7. Generation of Patterns in Thin Films	7-1

Part Two THE NATURE OF **THIN** FILMS

8. Condensation, Nucleation, and Growth of Thin Films	8-3
9. Determination of Structures in Films	9-1
10. The Growth and Structure of Single-crystal Films	10-1
11. Film Thickness and Composition	11-1

Part Three PROPERTIES OF **THIN** FILMS

12. Mechanical Properties of Thin Films	12-3
13. Electrical Properties of Metallic Thin Films	13-1
14. Electronic Conduction through Thin Insulating Films	14-1
15. Piezoelectric and Piezoresistive Properties of Films	15-1
16. Dielectric Properties of Thin Films	16-1
17. Ferromagnetic Properties of Films	17-1

Part Four APPLICATIONS OF **THIN** FILMS

18. Thin Film Resistors	18-3
19. Thin Film Capacitors	19-1
20. Thin Film Active Devices	20-1
21. Magnetic Devices	21-1
22. Superconductive Thin Films and Devices	22-1
23. Thin Films in Integrated Circuits	23-1

Index follows Chapter 23.