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Nota di contenuto	Contents ; Foreword ; CHAPTER 1: BASIC CONCEPTS ON THE INTERACTION OF LOW ENERGY ION BEAMS WITH SOLID TARGETS ; 1.1. Introduction ; 1.2. Interatomic interaction ; 1.3. Basic concepts in classical dynamics of binary elastic collisions ; 1.4. Range of energetic ions in solids 1.5. Spatial distribution of deposited energy 1.6. Damage induced by ion bombardment ; 1.7. Sputtering ; 1.8. Experimental parameters in IAD thin film growth ; References ; CHAPTER 2: ION ASSISTED METHODS OF PREPARATION OF THIN FILMS 2.1. Assistance of film growth with independent ion sources 2.2. Ion assisted deposition of thin films without independent ion sources ; 2.3. Plasma immersion ion implantation ; 2.4. Broad beam ion sources ; References ;

## CHAPTER 3: EFFECTS INDUCED BY THE ION ASSISTANCE OF FILM GROWTH

3.1. Ion beam effects during film growth

3.2. Nucleation and growth of thin films under ion bombardment

; 3.3. Topography and surface and interface roughness

; 3.4. Interface mixing ; 3.5. Densification of thin films ; 3.6. Defect generation

3.7. Amorphisation crystallinity and phase transformations

3.8. Compound formation by IAD ; 3.9. Texture development ; 3.10. Influence of ion assistance on thin film stress ; 3.11.

Improvement of adhesion in IAD thin films

; References

; CHAPTER 4: APPLICATIONS OF IAD PROCESSING

4.1. Tribological coatings

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### Sommario/riassunto

This book is an introductory manual for Ion Assisted Deposition (IAD) procedures of thin films. It is addressed to researchers, post-graduates and even engineers with little or no experience in the techniques of thin film deposition. It reviews the basic concepts related to the interaction of low energy ion beams with materials. The main procedures used for IAD synthesis of thin films and the main effects of ion beam bombardment on growing films, such as densification, stress, mixing, surface flattening and changes in texture are critically discussed. A description of some of the applications

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