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Changes Induced by Oxide Films; 4.5 Nanoporosity: Oxide Films as Molecular and Atomic Sieves
4.6 Flexibility of Oxide Thin Films and Polaronic Distortion4.7 Conclusions; Acknowledgments; Chapter 5: Silica and High-k Dielectric Thin Films in Microelectronics; 5.1 Introduction; 5.2 Electrical Characterization of High-k Dielectrics on Silicon; 5.3 Theoretical Modeling of Gate Dielectric Films; 5.4 Models of the Structure and Properties of HfO2 Gate Dielectric Films; 5.5 Polycrystalline Gate Oxide Films; 5.6 Conclusions and Outlook; Acknowledgments; Chapter 6: Oxide Passive Films and Corrosion Protection; 6.1 Introduction; 6.2 Electrochemical Fundamentals of Passivation of Metals
6.3 Chemical Composition, Chemical States, and Thickness of Passive Films on Metals and Alloys6.4 Two-Dimensional Oxide Passive Films on Metals; 6.5 Growth and Nanostructure of Three-Dimensional Ultrathin Oxide Films; 6.6 Corrosion Modeling by DFT; 6.7 Conclusion; Chapter 7: Oxide Films as Catalytic Materials and Models of Real Catalysts; 7.1 Introduction; 7.2 Oxide Thin Films Grown as Supports; 7.3 Systems to Model Real Catalysts; 7.4 Ultrathin-Film Catalysts; 7.5 Synopsis; Acknowledgments; Chapter 8: Oxide Films in Spintronics; 8.1 Introduction; 8.2 Historical Notes
8.3 Half-Metallic Manganites: the Case of LSMO8.4 Electric Control of Magnetization in Oxide Heterostructures; 8.5 Conclusions and Perspectives; Acknowledgments; Chapter 9: Oxide Ultrathin Films for Solid Oxide Fuel Cells; 9.1 Overview of Solid Oxide Fuel Cell Technology; 9.2 Preparation of Oxide Ion Conductor Thin Films; 9.3 Nano Size Effects on Oxide Ion Conductor Films; 9.4 Power Generating Property of SOFCs using LaGaO3 Thin Films; 9.5 Development of -SOFCs; 9.6 Concluding Remarks; Chapter 10: Transparent Conducting and Chromogenic Oxide Films as Solar Energy Materials; 10.1 Introduction
10.2 Transparent Infrared Reflectors and Transparent Electrical Conductors

Sommario/riassunto

A wealth of information in one accessible book. Written by international experts from multidisciplinary fields, this in-depth exploration of oxide ultrathin films covers all aspects of these systems, starting with preparation and characterization, and going on to geometrical and electronic structure, as well as applications in current and future systems and devices. From the Contents: Synthesis and Preparation of Oxide Ultrathin FilmsCharacterization Tools of Oxide Ultrathin FilmsOrdered Oxide Nanostructures on Metal SurfacesUnusual Properties of