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| Nota di contenuto       | Cover; Related Titles; Title Page; Copyright; Preface; References; List of Contributors; Chapter 1: Ionic Memory Technology; 1.1 Introduction; 1.2 Ionic Memory Switching Mechanisms; 1.3 Materials for Ionic Memories; 1.4 Electrical Characteristics of Ionic Memories; 1.5 Architectures for Ionic Memories; 1.6 Challenges of Ionic Memories; 1.7 Applications of Ionic Memories; 1.8 Summary; References; Chapter 2: Composite Solid Electrolytes; 2.1 Introduction; 2.2 Interface Interactions and Defect Equilibria in Composite Electrolytes; 2.3 Nanocomposite Solid Electrolytes: Grain Size Effects<br>2.4 Ionic Transport<br>2.5 Other Properties; 2.6 Computer Simulations; 2.7 Design of the Composite Solid Electrolytes: General Approaches and Perspectives; 2.8 Composite Materials Operating at Elevated Temperatures; 2.9 Conclusions; Acknowledgments; References; Chapter 3: Advances in the Theoretical Description of Solid-Electrolyte Solution Interfaces; 3.1 Introduction; 3.2 Theoretical Approaches; 3.3 Computer Simulations; Acknowledgment; References; Chapter 4: Dynamical Instabilities in Electrochemical Processes; 4.1 Introduction<br>4.2 Origin and Classification of Dynamical Instabilities in |

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Chapter 6: Electrodes for High-Temperature Electrochemical Cells: Novel Materials and Recent Trends 6.1 Introduction; 6.2 General Comments; 6.3 Novel Cathode Materials for Solid Oxide Fuel Cells: Selected Trends and Compositions; 6.4 Oxide and Cermet SOFC Anodes: Relevant Trends; 6.5 Other Fuel Cell Concepts: Single-Chamber, Micro-, and Symmetrical SOFCs; 6.6 Alternative Fuels: Direct Hydrocarbon and Direct Carbon SOFCs; 6.7 Electrode Materials for High-Temperature Fuel Cells with Proton-Conducting Electrolytes 6.8 Electrolyzers, Reactors, and Other Applications Based on Oxygen Ion- and Proton-Conducting Solid Electrolytes 6.9 Concluding Remarks; References; Chapter 7: Advances in Fabrication, Characterization, Testing, and Diagnosis of High-Performance Electrodes for PEM Fuel Cells; 7.1 Introduction; 7.2 Advanced Fabrication Methods for High-Performance Electrodes; 7.3 Characterization of PEM Fuel Cell Electrodes; 7.4 Testing and Diagnosis of PEM Fuel Cell Electrodes; 7.5 Final Comments; Acknowledgments; References; Chapter 8: Nanostructured Electrodes for Lithium Ion Batteries; 8.1 Introduction 8.2 Positive Electrodes: Nanoparticles, Nanoarchitectures, and Coatings

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Sommario/riassunto

The ideal addition to the companion volume on fundamentals, methodologies, and applications, this second volume combines fundamental information with an overview of the role of ceramic membranes, electrodes and interfaces in this important, interdisciplinary and rapidly developing field. Written primarily for specialists working in solid state electrochemistry, this first comprehensive handbook on the topic focuses on the most important developments over the last decade, as well as the methodological and theoretical aspects and practical applications. This makes the contents equally of inte

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