

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9911020161003321 |
| Autore | Zou Jianxin |
| Titolo | Magnesium-Based Energy Storage Materials and Systems |
| Pubbl/distr/stampa | Newark : , : John Wiley & Sons, Incorporated, , 2024 ©2024 |
| ISBN | 9783527842612 3527842616 9783527842599 3527842594 |
| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (179 pages) |
| Altri autori (Persone) | NuLiYanna HuZhigang LinXi ZhangQiuyu |
| Disciplina | 621.31242 |
| Soggetti | Hydrogen as fuel Magnesium electrodes |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Cover -- Title Page -- Copyright -- Contents -- Preface -- Acknowledgments -- Chapter 1 Overview -- 1.1 Introduction to Mg based Hydrogen and Electric Energy Storage Materials -- 1.2 Overview of Mgbased Hydrogen Storage Materials and Systems -- 1.3 Overview of Mgion Batteries -- Chapter 2 Hydrogen Absorption/Desorption in Mgbased Materials and Their Applications -- 2.1 The Characterizations of Mgbased Hydrogen Storage Materials -- 2.1.1 An Introduction to the Crystal Structure of Mg and MgH ₂ -- 2.1.2 Thermodynamic Mechanisms for the Hydrogen Absorption/Desorption of Mg/MgH ₂ -- 2.1.3 Kinetic Mechanisms for the Hydrogen Absorption/Desorption of Mg/MgH ₂ -- 2.2 Methods for Improving the Hydrogen Storage Performance of Mgbased Materials -- 2.2.1 Alloying -- 2.2.2 Catalyzing -- 2.2.3 Nanostructuring -- 2.2.4 Combining with Complex Hydrides -- 2.2.4.1 Combining with Metal Amides -- 2.2.4.2 Combining with Metal Boronhydrides or |

Aluminates -- 2.3 Synthesis Technologies for Mg-based Hydrogen Storage Materials -- 2.3.1 Preparation Methods of Mg-based Alloys -- 2.3.1.1 Melting-based Methods -- 2.3.1.2 Hydrogen Combustion Synthesis (HCS) -- 2.3.1.3 Mechanical Alloying, Compactions and Severe Plastic Deformation (SPD) Methods -- 2.3.1.4 Hydriding Chemical Vapor Deposition (HCVD) -- 2.3.2 Synthesis of Mg-based Materials with Special Structure and Morphology -- 2.3.2.1 Synthesis of Core–Shell Structured Mg-based Materials

Sommario/riassunto

This book, 'Energy Storage Materials and Systems', authored by Jianxin Zou and colleagues, provides a comprehensive examination of energy storage materials, focusing on hydrogen and magnesium-based systems. It addresses the challenges and potential solutions for renewable energy storage, emphasizing the importance of materials like magnesium hydrides for high-density storage. The text delves into the mechanisms of hydrogen storage, including compressed, liquid, and solid-state methods, and explores the development of magnesium-ion batteries as a promising technology for sustainable energy storage. The book is intended for researchers, engineers, and professionals in the field of renewable energy and materials science, offering insights into the latest advancements and applications of these technologies.
