

1. Record Nr.	UNINA9910817655903321
Titolo	Energy materials [[electronic resource] /] / edited by Duncan W. Bruce, Dermot O'Hare, Richard I. Walton
Pubbl/distr/stampa	Chichester, West Sussex, U.K., : Wiley, 2011
ISBN	1-283-37305-X 9786613373052 0-470-97806-6 0-470-97778-7 0-470-97779-5
Descrizione fisica	1 online resource (305 p.)
Collana	Inorganic materials series
Classificazione	TEC021000
Altri autori (Persone)	BruceDuncan W WaltonRichard I O'HareDermot
Disciplina	620.11 621.31242
Soggetti	Energy storage - Materials Electric batteries - Materials Power electronics - Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Energy Materials; Contents; Inorganic Materials Series Preface; Preface; List of Contributors; 1 Polymer Electrolytes; 1.1 Introduction; 1.1.1 Context; 1.1.2 Polymer Electrolytes - The Early Years; 1.2 Nanocomposite Polymer Electrolytes; 1.3 Ionic Liquid Based Polymer Electrolytes; 1.3.1 Ionic Liquid Properties; 1.3.2 Ion Gels; 1.3.3 Polymer Electrolytes Based on Polymerisable Ionic Liquids; 1.4 Crystalline Polymer Electrolytes; 1.4.1 Crystalline Polymer: Salt Complexes; References; 2 Advanced Inorganic Materials for Solid Oxide Fuel Cells; 2.1 Introduction 2.1.1 Conventional SOFC Electrolytes2.1.2 Conventional Anodes; 2.1.3 Conventional Cathodes; 2.1.4 Summary; 2.2 Next Generation SOFC Materials; 2.2.1 Novel Electrolyte Materials; 2.2.2 Novel Cathodes; 2.2.3 Ceramic and Sulfur Tolerant Anodes; 2.3 Materials Developments through Processing; 2.4 Proton Conducting Ceramic Fuel Cells; 2.4.1

Materials for Proton Conducting Solid Oxide Fuel Cells (PC-SOFCs); 2.5 Summary; References; 3 Solar Energy Materials; 3.1 Introduction; 3.1.1 The Solar Spectrum; 3.1.2 The Photovoltaics Industry; 3.1.3 Terminology; 3.2 Development of PV Technology 3.2.1 First Generation: Crystalline Silicon (c-Si) 3.2.2 Second Generation: Thin-Film Technologies; 3.2.3 Third Generation: Nanotechnology/Electrochemical PVs; 3.3 Summary; Acknowledgements; References; 4 Hydrogen Adsorption on Metal Organic Framework Materials for Storage Applications; 4.1 Introduction; 4.2 Hydrogen Adsorption Experimental Methods; 4.3 Activation of MOFs; 4.4 Hydrogen Adsorption on MOFs; 4.4.1 Hydrogen Adsorption Capacity Studies; 4.4.2 Temperature Dependence of Hydrogen Physisorption; 4.4.3 Hydrogen Surface Interactions in Pores 4.4.4 Framework Flexibility and Hysteretic Adsorption 4.4.5 Comparison of Hydrogen and Deuterium Adsorption; 4.5 Conclusions; Acknowledgements; References; Index

---

## Sommario/riassunto

In an age of global industrialisation and population growth, the area of energy is one that is very much in the public consciousness. Fundamental scientific research is recognised as being crucial to delivering solutions to these issues, particularly to yield novel means of providing efficient, ideally recyclable, ways of converting, transporting and delivering energy. This volume considers a selection of the state-of-the-art materials that are being designed to meet some of the energy challenges we face today. Topics are carefully chosen that show how the skill of the synthetic chemist can

---