1. Record Nr. UNICAMPANIASUN0051018

Autore	Adams, David R.
Titolo	Function spaces and potential theory / David R. Adams, Lars Inge Hedberg
Pubbl/distr/stampa	Berlin, : Springer, 1996
ISBN	03-87570-60-8 8-3-642-08172-9
Descrizione fisica	XI, 366 p. : ill. ; 24 cm.
Altri autori (Persone)	Hedberg, Lars I.
Soggetti	46-XX - Functional analysis [MSC 2020] 31-XX - Potential theory [MSC 2020] 31C15 - Potentials and capacities on other spaces [MSC 2020] 46E35 - Sobolev spaces and other spaces of “smooth” functions, embedding theorems, trace theorems [MSC 2020] 30E10 - Approximation in the complex plane [MSC 2020] 31C45 - Other generalizations (nonlinear potential theory, etc.) [MSC 2020] 31B15 - Potentials and capacities, extremal length and related notions in higher dimensions [MSC 2020]
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr. UNINA9910830554603321

Titolo	Handbook of hydrogen storage [[electronic resource]] : new materials for future energy storage / / edited by Michael Hirscher
Pubbl/distr/stampa	Weinheim, : Wiley-VCH Verlag GmbH & Co., c2010
ISBN	3-527-62980-7 1-282-54928-6 9786612549281 3-527-62981-5
Descrizione fisica	1 online resource (375 p.)
Classificazione	540 ERG 770b VE 9850 ZP 4150
Altri autori (Persone)	HirscherMichael
Disciplina	665.81 665.81 22
Soggetti	Hydrogen - Storage - Materials Energy storage
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	Handbook of Hydrogen Storage: New Materials for Future Energy Storage; Foreword; Contents; Preface; List of Contributors; 1 Storage of Hydrogen in the Pure Form; 1.1 Introduction; 1.2 Thermodynamic State and Properties; 1.2.1 Variables of State; 1.2.2 T-s-Diagram; 1.2.2.1 Joule-Thomson Coefficient; 1.2.3 Properties; 1.3 Gaseous Storage; 1.3.1 Compression and Expansion; 1.3.2 Tank Systems; 1.3.3 High Pressure Infrastructure; 1.4 Liquid Storage; 1.4.1 Liquefaction; 1.4.2 Thermodynamic Analysis; 1.4.2.1 Pressure Build-Up; 1.4.2.2 Boil-Off; 1.4.2.3 Cooling and Filling; 1.4.2.4 Back-Gas 1.4.3 Tank Systems1.4.4 Distribution Facilities; 1.5 Hybrid Storage; 1.5.1 Supercritical Storage; 1.5.2 Hydrogen Slush; 1.6 Comparison of Energy Densities; 1.7 Conclusion; References; 2 Physisorption in Porous Materials; 2.1 Introduction; 2.2 Carbon Materials; 2.3 Organic Polymers; 2.4 Zeolites; 2.5 Coordination Polymers; 2.6 Conclusions; References; 3 Clathrate Hydrates; 3.1 Introduction; 3.2 Clathrate Hydrate Structures;

3.3 Hydrogen Clathrate Hydrate; 3.4 Kinetic Aspects of Hydrogen Clathrate Hydrate; 3.5 Modeling of Hydrogen Clathrate Hydrates; 3.6 Future of Hydrogen Storage; References
4 Metal Hydrides4.1 Introduction; 4.2 Elemental Hydrides; 4.2.1 Ionic or Saline Hydrides; 4.2.2 Covalent Hydrides; 4.2.3 Metallic Hydrides; 4.3 Thermodynamics of Metal Hydrides; 4.3.1 Introduction; 4.3.2 Low Concentration; 4.3.3 High Concentration; 4.4 Intermetallic Compounds; 4.4.1 Thermodynamics; 4.4.1.1 Miedema's Model; 4.4.1.2 Semi-Empirical Band Structure Model; 4.4.2 Crystal Structure; 4.4.3 Electronic Structure; 4.5 Practical Considerations; 4.5.1 Synthesis; 4.5.2 Activation; 4.5.3 Hysteresis; 4.5.4 Plateau Slope; 4.5.5 Reversible Capacity; 4.5.6 Hydrogenation Kinetics
4.5.7 Cycle Life4.5.8 Decrepitation; 4.6 Metal Hydrides Systems; 4.6.1 AB5; 4.6.2 TiFe; 4.6.3 AB2 Laves Phases; 4.6.4 BCC Solid Solution; 4.7 Nanocrystalline Mg and Mg-Based Alloys; 4.7.1 Hydrogen Sorption Kinetics; 4.7.2 Reduction of the Heat of Formation; 4.7.3 Severe Plastic Deformation Techniques; 4.8 Conclusion; 4.8.1 Alloys Development; 4.8.2 Synthesis; 4.8.3 System Engineering; References; 5 Complex Hydrides; 5.1 Introduction; 5.2 Complex Borohydrides; 5.2.1 Introduction; 5.2.2 Stability of Metal Borohydrides; 5.2.3 Decomposition of Complex Borohydrides
5.2.4 Lithium Borohydride, LiBH45.2.4.1 Synthesis and Crystal Structure; 5.2.4.2 Decomposition of LiBH4; 5.2.5 Sodium Borohydride, NaBH4; 5.2.5.1 Synthesis and Crystal Structure; 5.2.5.2 Decomposition of NaBH4; 5.2.6 Potassium Borohydride KBH4; 5.2.7 Beryllium Borohydride Be(BH4)2; 5.2.8 Magnesium Borohydride Mg(BH4)2; 5.2.8.1 Synthesis and Crystal Structure; 5.2.8.2 Decomposition; 5.2.9 Calcium Borohydride Ca(BH4)2; 5.2.9.1 Synthesis and Crystal Structure; 5.2.9.2 Decomposition; 5.2.10 Aluminum Borohydride Al(BH4)3; 5.2.10.1 Synthesis and Crystal Structure; 5.2.10.2 Decomposition
5.2.11 Zinc Borohydride Zn(BH4)2

Sommario/riassunto

Owing to the limited resources of fossil fuels, hydrogen is proposed as an alternative and environment-friendly energy carrier. However, its potential is limited by storage problems, especially for mobile applications. Current technologies, as compressed gas or liquefied hydrogen, comprise severe disadvantages and the storage of hydrogen in lightweight solids could be the solution to this problem.Since the optimal storage mechanism and optimal material have yet to be identified, this first handbook on the topic provides an excellent overview of the most probable candidates, highlighting bo