1. Record Nr. UNINA9910463340003321

Titolo	Chemical energy storage [[electronic resource] /] / edited by Robert Schlogl
Pubbl/distr/stampa	Berlin, : De Gruyter, 2013
ISBN	3-11-026632-6
Descrizione fisica	1 online resource (500 p.)
Collana	De Gruyter Textbook
Classificazione	ZP 4120
Altri autori (Persone)	SchloglRobert <1954->
Disciplina	621.31/242
Soggetti	Chemical kinetics Fuel Electrochemistry Energy conversion Electronic books.
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	Frontmatter -- Contents -- Author Index -- 1.1 The Solar Refinery / Schlögl, Robert -- 1.2 Energy Storage Strategies / Schüth, Ferdi -- 1.3 Energy and Society: A Practical Guide / Hofmann, Gerhard -- 2.1 Biofuels Derived from Renewable Feedstocks / Palkovits , Regina / Wright, William R. H. -- 2.2 Biomass Conversion to Chemicals / Brandner , Armin / Claus, Peter -- 2.3 Thermal Conversion of Biomass / DeMartini, Nikolai / Aho, Atte / Hupa, Mikko / Murzin, Dmitry Yu. -- 2.4 Biomass to Mineralized Carbon: Energy Generation and/or Carbon Sequestration / Antonietti, Markus -- 3.1 Electrochemical Concepts: A Practical Guide / Doblhofer, Karl -- 3.2 Water-Splitting Conceptual Approach / Rossmeisl, Jan -- 3.3 Fuel Cells / Strasser, Peter -- 3.4 Molecular Concepts of Water Splitting: Nature's Approach / Cox , Nicholas / Lubitz, Wolfgang -- 3.5 Batteries: Concepts and Systems / Samuelis , Dominik / Maier, Joachim -- 4.1 Chemical Kinetics: A Practical Guide / Arndt , Sebastian / Schomäcker, Reinhard -- 4.2 Synthesis of Solid Catalysts / Trunschke, Annette -- 4.3 In situ Analysis of Heterogeneous Catalysts in Chemical Energy Conversion / Grunwaldt, Jan-Dierk -- 4.4 Model Systems in Catalysis for Energy Economy / Nilius, Niklas / Sterrer, Martin / Shaikhutdinov, Shamil /

Menzel, Dietrich / Freund, Hans-Joachim -- 4.5 Challenges in Molecular Energy Research / DeBeer, Serena / van Gastel, Maurice / Bill, Eckhard / Ye, Shengfa / Petrenko, Taras / Pantazis, Dimitrios A. / Neese, Frank -- 5.1 Photoelectrochemical CO2 Activation toward Artificial Leaves / Centi , Gabriele / Perathoner, Siglinda -- 5.2 Thermochemical CO2 Activation / Kähler, Kevin / Franzke, Thomas / Muhler, Martin -- 5.3 Methanol Chemistry / Kunkes , Edward / Behrens, Malte -- 5.4 Synthesis Gas to Hydrogen, Methanol, and Synthetic Fuels / van de Loosdrecht , Jan / Niemantsverdriet, J. W. (Hans) -- Index

Sommario/riassunto

The use of regenerative energy in many primary forms leads to the necessity to store grid dimensions for maintaining continuous supply and enabling the replacement of fossil fuel systems. Chemical energy storage is one of the possibilities besides mechano-thermal and biological systems. This work starts with the more general aspects of chemical energy storage in the context of the geosphere and evolves to dealing with aspects of electrochemistry, catalysis, synthesis of catalysts, functional analysis of catalytic processes and with the interface between electrochemistry and heterogeneous catalysis. Top-notch experts provide a sound, practical, hands-on insight into the present status of energy conversion aimed primarily at the young emerging research front.