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Hydrides: Science and Technology

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Message from the Guest Editor

Since the late 1940s, the synthesis methodologies and properties of hydrides have attracted the attention of chemists, physicists and engineers. From a purely scientific point of view, hydrides constitute fascinating materials with diverse crystallographic structures and bonding characteristics, exhibiting a whole spectrum of unusual chemical and physical properties. For the past 20 years they have also attracted the attention of engineers since they have the potential for very efficient generation and storage of hydrogen in the solid state. For reversible hydrides, their dehydrogenation/rehydrogenation phenomenon is an example of energy transformation that may be utilized as either hydrogen or heat storage system. Dehydrogenation of irreversible hydrides can supply very clean hydrogen gas (H_2) that is a potential energy carrier. Hydrogen gas is necessary for the implementation of the world-wide hydrogen economy in which an efficient usage of fuel cells where H_2 in contact with oxygen (O_2) is converted into an electrical energy. Engineering systems for supplying H_2 to fuel cells in the future hydrogen economy, based on solid hydrides, are the most attractive long-term solution...



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Special Issue



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Message from the Editor-in-Chief

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