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Catalytic Hydrogen Production, Storage and Application

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Message from the Guest Editor

The potential use of hydrogen as a clean and renewable fuel has gained significant attention in recent years. Hydrogen is a promising clean energy carrier that can be produced from fossil fuels such as natural gas or coal. It can also be produced from renewables, including biomass, water splitting using renewable energy from wind, solar, geothermal, or hydroelectric sources. Future research needs to develop low-cost, highly efficient catalytic hydrogen production from renewable sources. For this purpose, an improvement in the catalysts' efficiency for hydrogen production is highly required. Hydrogen is a clean energy source that can replace fossil fuels, whereas its transportation and storage are complicated and expensive, which restrict its practical applications, especially at large scale. To overcome these shortcomings, hydrogen carriers/storage materials, such as ammonia, organic hydrides, metal hydrides, and hydrocarbons have been developed.



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