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Design of Materials for Solid State Hydrogen Storage

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Message from the Guest Editor

Among the different solid-state hydrogen storage systems, complex and conventional metal hydrides have drawn significant attention because of their remarkable gravimetric and volumetric capacities. The kinetics and thermodynamic destabilization of these materials can be improved either by nanocrystallization and/or by different additives. Nanocrystallization based on severe plastic deformation can be processed via high energy ball milling (HEBM), equal channel angular pressing (ECAP), and cold rolling (CR). Adding catalysts, like transition metals, their oxides, and carbon-based materials, have a substantial impact on the effectiveness of hydrogen storage.

This Special Issue would like to encourage the submission of original contributions regarding recent developments on materials synthesis for efficient hydrogen storage by processing techniques based on severe plastic deformation.

Keywords: hydrogen storage; metal hydrides; complex hydrides; catalysts; carbon-based additives; severe plastic deformation; ball-milling; equal channel angular pressing; cold rolling



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Message from the Editor-in-Chief

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