



Metal Hydrides and Oxyhydrides for Energy-Related Applications

Guest Editors:

Prof. Dr. Olena Zavorotynska

Faculty of Science and
Technology, Department of
Mathematics and Physics,
University of Stavanger, 4021
Stavanger, Norway

Dr. Smagul Karazhanov

Solar Energy Department,
Institute for Energy Technology,
P.O Box 40, NO 2027 Kjeller,
Norway

Deadline for manuscript
submissions:

closed (30 April 2022)

Message from the Guest Editors

Dear Colleagues,

Metal hydrides have become widely studied as solid-state hydrogen-storage media due to their exceptionally high gravimetric and volumetric hydrogen densities, the latter often suppressing that of liquid hydrogen. At the same time, the volumetric energy density of a hydrogen medium can be higher than that of any other materials, including Li-batteries. Whereas particular hydride classes or compounds possess one or several of the key properties for a hydrogen storage material—and find niche applications—none of them has it all.

Contrarily to hydrides, the field of metal oxyhydrides is rather unexplored, presenting a new horizon of challenges and opportunities. Introduction of H⁻ into an oxide can tune binding energy and electronic structure, altering the local symmetry and causing crystal field splitting, changing bonding nature, etc. This can induce unique structural and chemophysical properties in the materials, including H-conductivity, photochromism, photoelectrochemical water splitting, electrical conductivity, and catalytic properties. Around 50 oxyhydride compounds are currently known to possess unique and interesting properties...





energies



an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and
Aerospace Engineering,
University of Roma Sapienza, Via
Eudossiana 18, 00184 Roma, Italy

Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), Ei Compendex, RePEc, Inspec, CAPlus / SciFinder, and other databases.

Journal Rank: CiteScore - Q1 (Control and Optimization)

Contact Us

Energies Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/energies
energies@mdpi.com
[X@energies_mdpi](https://twitter.com/energies_mdpi)