

## Special Issue

# Concepts for Improvement of Hydrogen Storage Hydride Materials

### Message from the Guest Editor

Application of hydride solid state materials is key to solving the problem of hydrogen storage, particularly in the development of small-sized energy devices based on LT PEM FC. To increase the competitiveness of this technology, it is necessary to develop compact hydrogen generators to meet the requirements of light weight, small size, and high power density. Thus, safe hydrogen storage materials with a high hydrogen capacity and improved kinetics of hydrogen generation are required. To solve this problem, different synthetic approaches are applied, such as development of active catalysts and modifiers as components of hydride materials, using nanoscale approaches and nanoconfinements, ball milling, electrospinning, etc. This allows designing hydrogen generation systems via processes of thermolysis or hydrolysis. Theoretical studies and modeling of such materials and processes help to reveal the most important factors determining hydrogen mobility and to predict hydrogen generation by varying the parameters.

---

### Guest Editor

Dr. Oksana V. Komova

Boreskov Institute of Catalysis SB RAS, 630090 Novosibirsk, Russia

---

### Deadline for manuscript submissions

closed (10 July 2023)



## Materials

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.1  
CiteScore 5.8  
Indexed in PubMed



[mdpi.com/si/80104](https://mdpi.com/si/80104)

*Materials*

MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[materials@mdpi.com](mailto:materials@mdpi.com)

[mdpi.com/journal/  
materials](https://mdpi.com/journal/materials)





# Materials

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.1  
CiteScore 5.8  
Indexed in PubMed



[mdpi.com/journal/  
materials](https://mdpi.com/journal/materials)



## About the Journal

### Message from the Editor-in-Chief

*Materials* (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

---

### Editor-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

---

### 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), PubMed, PMC, Ei Compendex, CaPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

#### Journal Rank:

JCR - Q1 (Metallurgy and Metallurgical Engineering) /  
CiteScore - Q2 (Condensed Matter Physics)