Special Issue

Recent Advances in Nanostructured Catalysts for Hydrogen Production

Message from the Guest Editor

Hydrogen has the potential to become a popular fuel source due to the environmental friendliness of its use, facilitating the achievement of existing net-zero emissions goals. However, choosing to utilize hydrogen production technology is a key factor in determining the real environmental friendliness of its use. The catalytic steam reforming of methane still remains an existing commercial source of hydrogen production with respect to technological development as well as economic perspectives. However, water electrolysis, biomass pyrolysis, and methane splitting are processes that generate high-purity hydrogen. Keeping in mind the need for pure hydrogen, this Special Issue is focused on, but not limited to, inviting original research articles, communications, perspectives, and review articles aimed at exploring the following topics:

- Recent advancements in pure hydrogen production processes;
- Economic aspects of pure hydrogen production;
- The role of theoretical simulations, artificial intelligence, and machine learning in pure-hydrogen production;
- Novel nanomaterial-based heterogeneous catalysts.

Guest Editor

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Deadline for manuscript submissions

30 September 2025

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/si/231803

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manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.6 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the first half of 2025).