Special Issue

Catalytic Dry Reforming of Methane: Recent Advances

Message from the Guest Editor

The dry reforming of methane (DRM) is a promising route for syngas production, utilizing two major greenhouse gases, methane (CH_4) and carbon dioxide (CO_2), to produce a valuable H_2/CO mixture. Despite its potential as a sustainable process for carbon-neutral fuel synthesis, the industrial adoption of DRM faces key challenges, including catalyst deactivation due to carbon deposition, active metal sintering, and oxidation under harsh reaction conditions.

This Special Issue aims to highlight cutting-edge advancements in DRM, focusing on catalyst design, reaction mechanisms, process optimization, and reactor engineering. Recent breakthroughs in bimetallic and transition metal carbide/phosphide catalysts, as well as strategies for enhancing metal–support interactions and oxygen vacancy generation, have shown promise in mitigating coke formation and improving catalytic stability. Contributions covering computational modeling, in-situ characterization techniques, and techno-economic analyses are also encouraged.

Guest Editor

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Deadline for manuscript submissions

closed (20 September 2025)

Catalysts

an Open Access Journal by MDPI

Impact Factor 4.0
CiteScore 7.6

mdpi.com/si/235147

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