Special Issue

Innovations in CO_2 and Hydrogen Storage: Emerging Technologies and Applications

Message from the Guest Editor

Climate change is driven by a combination of natural variations and human activities, particularly atmospheric pollution. Among the primary greenhouse gases—carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and water vapor (H2O)—CO2 is especially strongly linked to rising surface temperatures. In this context, both CO2 capture and hydrogen storage have emerged as essential strategies for mitigating climate change. Efficient CO2 storage is crucial for reducing atmospheric greenhouse gas levels, while hydrogen, as a clean energy carrier, can significantly cut carbon emissions if its production, storage, and distribution are effectively managed. The issue aims to bring together cutting-edge studies, reviews, and case analyses that highlight novel materials, engineering approaches, and integrated systems for gas storage. Topics include solid-state and chemical hydrogen storage, advanced CO2 capture and sequestration methods and practical applications in energy, transportation, and industry.

Guest Editor

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Editor-in-Chief

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