Special Issue

Porous Functional Structures for Hydrogen Energy and Carbon Capture and Conversion

Message from the Guest Editors

Porous materials play a crucial role in implementing most Carbon Capture and Utilisation and Power-to-X routes. Their high specific surface area and tailored pore architecture provide efficient platforms for CO_2 capture, gas separation, and hydrogen storage, while simultaneously allowing controlled functionalisation. This structural versatility makes porous materials essential not only for capture and storage, but also for the catalytic conversion steps underpinning the production of synthetic fuels and hydrogen. Consequently, engineered porosity constitutes a critical link between CO_2 capture and its transformation into value-added fuels within integrated Carbon Capture and Utilisation and Power-to-X frameworks

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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.

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