

Special Issue

Nanopores and Nanostructures in Tight Reservoir Rocks

Message from the Guest Editors

This Special Issue of *Nanomaterials* is dedicated to advancing research on nanopores and nanostructures in tight reservoir rocks, highlighting their critical role in energy resource recovery and subsurface storage. We invite contributions that explore novel characterization techniques, experimental studies, and computational modelling to uncover the fundamental properties and behaviors of nanoporous reservoir rocks. Topics of interest include, but are not limited to, the following:

- Nanoscale characterization of pore networks in tight reservoir rocks utilizing high-resolution techniques.
- Microscale diagenetic evolution and tectonically-induced nanostructures.
- Fluid transport and phase behavior in confined nanoporous systems.
- Geomechanical properties influenced by nanostructures and their impact on hydraulic fracturing.
- Computational modelling (molecular dynamics, DFT, pore network simulations) of fluid–rock interactions.
- Geological storage of CO₂ and hydrogen in nanoporous reservoir rocks (e.g., shale and coal).

Guest Editors

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Deadline for manuscript submissions

closed (20 April 2026)



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About the Journal

Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano–alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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