Special Issue

Experimental Analysis and Numerical Simulations of Porous Media or Fluid Flowing at Nanoscale

Message from the Guest Editor

Unconventional oil and gas resources—shale gas, tight gas, shale oil, tight oil, and coalbed methane—have garnered interest. These reservoirs have low or ultra-low permeability, due to pore sizes being microscale or even nanoscale. Fluid accumulation, distribution, phase behavior, and flow mechanisms differ from conventional formations. Accurate characterization of nanoporous structure and fluid flow modeling are fundamental for efficient exploitation. This Special Issue focuses on advances in nanoscale porous media characterization and fluid flow dynamics in unconventional reservoirs, including lab measurements, mathematical modeling, analytical/numerical solutions, and field applications. Original research and review articles are welcome. Topics include but are not limited to: Nanoscale pore structure characterization and modeling; Permeability prediction of nanoporous media; Phase behavior in nanoporous media; Gas adsorption in nanopores; Fluid flow in nanoscale porous media; Nanofluids/nanomaterials for enhanced oil/gas recovery; Nanofluids/nanomaterials in CCUS.

Guest Editor

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Deadline for manuscript submissions

20 May 2026

Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed

mdpi.com/si/260821

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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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