Special Issue

New Insights into the Physics of Digital Porous Media

Message from the Guest Editors

Porous media are ubiquitous in both natural and engineered systems, and their macroscopic behavior is fundamentally governed by complex pore structures spanning multiple length scales. Understanding and predicting transport, reaction, and mechanical responses in such materials remain challenging because heterogeneity, connectivity, and multiphase/multiphysics couplings are difficult to quantify and model in a consistent manner. With rapid advances in digital imaging and computational techniques, pore-scale imaging, visualization, and quantitative analysis are enabling more rigorous links between microstructure and effective properties, thereby supporting both scientific discovery and engineering design. Digital approaches to porous media bridge multiple disciplines, including geoscience, materials science, physics, mechanics, computational modeling, and machine learning. Over the past decades, major progress in imaging, reconstruction, segmentation, simulation, and upscaling has had a significant impact on both academic research and industrial practice.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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