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Transport Phenomena in Porous Media and Fractal Geometry

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Deadline for manuscript submissions:
closed (30 May 2023)

Message from the Guest Editors

Dear Colleagues,

Heat and mass transport in porous media have been found to serve in a large number of practical applications. It is, however, notoriously difficult to characterize the transport accurately, mainly due to the highly complicated structure of porous media. Various numerical methods have been recently developed. Although numerical implementations differ from case to case, they can hardly reveal the physics involved during the transport clearly or provide generalized formulation consequently, leading to the requirement of analytical analysis.

On the other hand, microstructures of most of the natural- and artificial porous media have been found to follow the fractal geometry, enabling analytical analysis of the complicated structure of porous media with the fractal theory. Once the microstructures have been characterized, the transport properties, such as permeability, thermal conductivity, diffusion coefficient, can be quantified as a consequence.

The Special Issue concentrates on the state of the art in fractal-based method on transport in porous media, combined with other recent experiments and numerical simulations, offering a more-in-depth insight.