MODELING AND COMPUTATIONS OF FLOW THROUGH NETWORK-BASED POROUS MEDIA

800 – FLUID DYNAMICS AND TRANSPORT PHENOMENA

LOU KONDIC[*] AND LINDA J. CUMMINGS[*]

[*] Department of Mathematical Sciences
University Heights, Newark, NJ 07102, USA
kondic@njit.edu; linda.cummings@njit.edu; https://cfsm.njit.edu

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ABSTRACT

The flow of single-phase fluids and suspensions through porous media is of importance in a number of applications, such as filtration and geomechanics, among others. The general focus of the proposed mini-symposium is directed toward modeling and computing such flows. The more specific focus is on porous media configurations in which the pores are slender. In such cases, the porous media can be modeled as a network of connected slender pores, therefore allowing for the use of the range of tools emerging from network theory and computational topology to help correlate the porous media structure and its functionality. One important application of such types of porous media is in the case of filtration [1, 2, 3], however many other applications could benefit from asymptotic and computational methods developed in the filtration context.

The proposed mini-symposium will focus on bringing together researchers working on modeling network-based porous media in a variety of different contexts. Our expectation is that by bringing together researchers from different fields of application, we will encourage the flow of information between often disjoint fields of research. We hope that further development of asymptotic models and related computational techniques will allow for the formulation of new and efficient computations that will find relevance in a variety of important applications.

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