

Abstract Submitted  
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**Distribution of self-organizing driven particles and their mobility around a slit in porous media** JOE GETTRUST, Naval Research Laboratory, RAS PANDEY, University of Southern Mississippi — Self-organizing structures and mobility profiles of a mixture of immiscible driven particles (A, B with molecular weights  $M_A$  and  $M_B$ ) through a porous medium are examined by an interacting lattice computer simulation. The porous medium is generated by a random distribution of barriers on a three dimensional lattice with a slit across the center. Interacting particles enter the lattice from the source and execute their stochastic motion with the Metropolis algorithm, and are driven by their concentration gradient and a pressure bias against gravity. Density and mobility profiles of particles in steady-state are studied as a function of pressure bias. A large fraction of particles flows through the slit with a relatively uniform dispersion in the surrounding porous regions in absence of the bias. Increasing the bias introduces long-range correlations among the constituents resulting in larger density further away from the slit. Effects of the size of the slit's width on the density profile of particles and their mobility are also examined.

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