

1059-35-250

Bryan J Travis* (bjtravis@lanl.gov), EES-16/MS-D452, Los Alamos National Laboratory, Los Alamos, NM 87545. *PDEs for Flow and Transport in Porous Media with Fractal Coefficients*. Preliminary report.

Permeability of soils has a fractal character over many orders of magnitude in scale. This presents a challenge for numerical simulations of flow and transport in porous media. To capture subgridscale dynamics in porous media, we are experimenting with partial differential equations having fractal coefficients. Numerical solution of the governing equations is obtained through use of fractal interpolating functions. Examples in two and three dimensions illustrate the method. In a related study, flows over fractal boundaries are compared to flows over corresponding smoothed boundaries. (Received February 24, 2010)