

PERCOLATION EXPERIMENT FOR HYDRODYNAMICAL DISPERSION

P.Bakucz

Zrinyi University Budapest & Technische Universitat Darmstadt

bakucz@ihwb.tu-darmstadt.de

In this paper the attention is turned to determination of the hydrodynamical dispersion for saturated zone using porous Hele-Shaw cell with percolation cluster lattice. The cluster lattice contains connected paths of pores and bonds at the percolation threshold probability for the rectangular area ($p=0.593\dots$) Elaborating more than 120 experiments using homogen monodispersie glass sphere with systematical location on the Hele-Shaw layer. The breakthrough curve is approximated by the error function. Clustering the results based on the distribution of the flow velocities in the percolation lattice is presented. The fractal dimension of the clusters and their backbones agrees not well with the theoretical calculations of the percolation clusters on larger lattice. Possible reasons of the discrepancies are demonstrated.