

Abstract Submitted
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Monte Carlo Simulation Study of Lattice Gas Diffusion in a Box Fractal¹ DANIEL P. KNOWLTON, Dept. of Physics, Doane College, Crete, NE, JAMES L. JOHNSON, Dept. of Mathematics, Doane College, Crete, NE, CHRISTOPHER D. WENTWORTH, Dept. of Physics, Doane College, Crete, NE — In this investigation we study a simple model of diffusion of a concentrated lattice gas in a box fractal structure. The model involves a fixed concentration of particles that undergo random hopping to nearest-neighbor sites with equal probability. The particles do not interact except that double-occupancy of a lattice site is not allowed. The particles move in a lattice of box fractal structure, which has a fractal dimension of 1.465. The mean-square displacement of a tracer particle as a function of time is calculated from the simulation. The simulation suggests anomalous diffusion occurs in this lattice structure.

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