

The Simulation of the Two-Dimensional Ising Model on the Creutz Cellular Automaton for the Fractals Obtained by Using the Model of Diffusion-Limited Aggregation

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The fractals are obtained by using the model of diffusion-limited aggregation (DLA) for the lattice with $L = 80, 120, \text{ and } 160$. The values of the fractal dimensions are compared with the results of former studies. As increasing the linear dimensions they are in good agreement with those. The fractals obtained by using the model of DLA are simulated on the Creutz cellular automaton by using a two-bit demon. The values computed for the critical temperature and the static critical exponents within the framework of the finite-size scaling theory are in agreement with the results of other simulations and theoretical values.

Key words: Ising Model; Finite-Size Scaling; Cellular Automaton; Fractals.

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