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Stochastic Modeling of Fractal Diffusion

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Stochastic models of diffusion in spatial domains of noninteger dimension are widely applicable as a basis of simulations. Obtaining data having fractal properties requires the construction of fine enough discrete lattices that is computationally expensive. This contribution presents a novel way of representing graph-based finite models using a generalized coordinate system. Presented methods allow for convenient selection of random vertices and also for representing movement between vertices. Fractal properties of obtained simulation data are tested and presented and show the applicability of introduced methods in statical testing of dimension estimates.

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