

Fractional Diffusion Equation in Cylindrical Symmetry: A New Derivation

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Based on the so-called cylindrical brush structure as a fractal model, we derive the generalized fractional diffusion equation in cylindrical symmetry. Moreover, we derive the fractional calculus and also present the usefulness of fractional ideas in diffusion processes that take place in brush polymer, rheology, and complex systems.

Key words: Fractional Diffusion in Cylindrical Symmetry; Anomalous Diffusion; Brush Structure.