A Model connecting Quantum, Diffusion, Soliton, and Periodic Localized States under Brownian motion

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We propose new equations of motion under the theory of the Brownian motion to connect the states of quantum, diffusion, soliton, and periodic localization. The new equations are nothing but the classical equations of motion with two additional terms and the one of them can be regarded as the the quantum potential. By choosing a parameter space, various important states are obtained. Further, the equations contain other interesting phenomena such as general dynamics of diffusion process, collapse of the soliton, the nonlinear extension of the Schr\"dinger equation, and the dynamics of phase transition.

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