Physics > Data Analysis, Statistics and Probability

Perturbation theory for a stochastic process with Ornstein-Uhlenbeck noise

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The Ornstein-Uhlenbeck process may be used to generate a noise signal with a finite correlation time. If a one-dimensional stochastic process is driven by such a noise source, it may be analysed by solving a Fokker-Planck equation in two dimensions. In the case of motion in the vicinity of an attractive fixed point, it is shown how the solution of this equation can be developed as a power series. The coefficients are determined exactly by using algebraic properties of a system of annihilation and creation operators.

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