Mathematical Physics

A class of nonlinear random walks related to the Ornstein-Uhlenbeck process

S.A. Muzychka, K.L. Vaninsky

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Contrary to the theory of Markov processes, no general theory exists for the so called nonlinear Markov processes. We study an example of "nonlinear Markov process" related to classical probability theory, merely to random walks. This model provides interesting phenomena (absent in classical Markov chains): continuum of stationary measures, conserved quantities, convergence to stationary classical random walks etc.

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