

A stochastic scheme of approximation for ordinary differential equations

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Abstract

In this note we provide a stochastic method for approximating solutions of ordinary differential equations. To this end, a stochastic variant of the Euler scheme is given by means of Markov chains. For an ordinary differential equation, these approximations are shown to satisfy a Large Number Law, and a Central Limit Theorem for the corresponding fluctuations about the solution of the differential equation is proven.

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Pages: 1-9

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