

Stochastic Differential Equations

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I will introduce Ito stochastic differential equations for a beginner and explain

- Ito integrals,
- strong and weak convergence, and
- stochastic differential equations relation to deterministic Kolmogorov partial differential equations.

In particular I will describe

- Why Ito integrals are different from standard integrals from a computational view,
- Why weak convergence is more relevant than strong,
- How stochastic differential equations can be derived from Master equations for a spin system.

Lecture notes on stochastic differential equations for a semester course with this focus is available on <http://www.math.kth.se/~szepessy/sdepde.ps>