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Title (English)

Numerical solution the the master equation using the linear noise approximation

Title (Swedish)

Abstract

Biological systems can be modelled stochastically *in silico* with the master equation. However, the computational demands in these calculations restrict the number of dimensions of the biological system, that is the number of species involved. In this thesis, the application of the linear noise approximation to the master equation is tested in order to simplify the computational problems. The approximation can then allow us to study systems of higher dimensions. Here, both two- and four-dimensional systems were studied and compared to earlier calculations with the master equation using the Fokker-Planck approximation.

Keywords

System biology, master equation, LNA, linear noise approximation, mesoscopic, stochastics.

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