

UNICAMP – IMECC
Departamento de Matemática

Seminário de Sistemas Dinâmicos e Estocásticos

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Título: Metastability of the stochastic Chafee-Infante equation
with small heavy-tailed Lévy noise

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Resumo. Motivated by climatological studies researchers around Imkeller and Pavlyukevich showed in a series of articles that the study of diffusions in multi-well potentials with Lévy noise with (heavy-tailed) regularly varying tails at small intensity may provide substantial conceptual insight in the behavior of paleoclimatic time series. I will advertise a natural spatial extension of this kind of models, which leads to parabolic stochastic partial differential equations, whose model case can be considered to be the stochastic Chafee-Infante equation. Solution concepts and characteristic properties both for the stochastic and the respective deterministic system will be sketched. The rest of the talk will be devoted to the discussion of the asymptotic first exit time from the deterministic domain of attraction of a stable state for the solution of the stochastic Chafee-Infante equation in the limit of small noise intensity. We show that the expected exit time grows polynomially in the inverse noise intensity, which contrasts sharply with the exponential scales usually obtained by the Freidlin-Wentzell theory. In the end, the announced metastability result will be presented.

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