

M A T H E M A T I C A L P H Y S I C S S E M I N A R

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Spectral gap in a stochastic energy model

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Thursday, November 1, 2012 - 12:00 PM

Abstract

Since our approach to the first, dynamical part (i.e. to obtain the master equation from the kinetic one) of Gaspard-Gilbert's 2008 two step program to derive heat equation from a mechanical model requires the elaboration of some further tools, continuous time, pure jump Markov process for a linear chain of N particles each carrying an energy. A lower bound (in terms of N) is presented for the spectral gap of the Markov generators. Our spectral bound is just the necessary one for the second step: for possibly deriving the heat equation. The family of stochastic evolutions, introduced above, contains the model of localized hard disks/balls of Gaspard and Gilbert. Joint work with A. Grigo and K. Khanin.