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Seção
Abstracts

Nonextensive statistics for time evolution of interacting particles

Mauricio de Souza Ribeiro
Centro Brasileiro de Pesquisas Físicas

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Resumo

A system of interacting particles under a overdamped motion is known to be a model able to describe flux front penetration in disordered type-II superconductors. Was shown recently, that a coarse-grained representation of this system leads to a nonlinear Fokker-Planck formalism, corresponding to a Tsallis statistic with q=0, that is appropriate to describe the stationary state. In this work, we repeat same approach making a molecular dynamic simulation confirming that the temporal evolution of this system is also described by the same theory. We present the probability distribution for particle velocity and particle position, that is in agreement with the analytical solution of nonlinear Fokker-Planck equation related. We found that horizontal distribution for velocity and position follow equal entropic index q=0, for all time. For vertical velocity distribution, a sequence of q-Gaussian under evolution are found until the equilibrium state.