

D. Basko

Title:

"Theory of nonlinear diffusion in a weakly disordered anharmonic chain in the regime of strong chaos"

Abstract:

I will discuss the long-time equilibration dynamics of a weakly disordered one-dimensional chain of coupled anharmonic classical oscillators, described by the discrete nonlinear Schroedinger equation. All normal modes of the linear problem are localized, and I will address the case of weak disorder, when the localization length is large. I will focus on the regime of moderately weak nonlinearity, when all eigenmodes have strongly chaotic dynamics. In this regime, the dynamics of the mode intensities can be described by a kinetic equation, from which a non-linear diffusion equation for the density can be derived.