

Metastability for parabolic equations with drift

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I will outline pde methods analyzing the exponentially long time behavior of solutions to linear uniformly parabolic equations which are small perturbations of a transport equation with vector field having a globally stable point. The results say that the solutions converge to a constant, which is either the initial value at the stable point or the boundary value at the minimum of the associated quasi-potential, which are due to Freidlin and Wentzell and Freidlin and Korolov, and applies also to semilinear parabolic equations. This is based on a joint work with Takis Souganidis of the University of Chicago.