INSTITUTUL DE MATEMATICĂ “SIMION STOILOW” AL ACADEMIEI ROMÂNE

Stochastic homogenization of interfaces moving with changing sign velocity

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Abstract: I will present a result on stochastic homogenization of interfaces moving, in stationary ergodic environments, with oscillatory normal velocity which changes sign. The problem can be formulated as the homogenization of a Hamilton-Jacobi equation with a 1-positively homogeneous, non-coercive and non-convex Hamiltonian. The periodic setting was studied earlier by Cardaliaguet, Lions and Souganidis (2009). Here we concentrate in the random media and show that the solutions of the oscillatory Hamilton-Jacobi equation homogenize only weakly to a linear combination of the initial datum and the solutions of several initial value problems with deterministic effective Hamiltonian(s). The result apply for a wide class of domains, such as percolation structures from probability. This is joint work with Takis Souganidis and Hung Tran.