

Noise prevents infinite stretching of the passive field in a stochastic vector advection equation.

Abstract

A linear stochastic vector advection equation is a model for a passive magnetic field in a random fluid. When the driving velocity field is rough but deterministic, in particular just Hölder continuous and bounded, one can construct examples of infinite stretching of the passive field, arising from smooth initial conditions. The purpose of the talk is to demonstrate that infinite stretching is prevented if the driving velocity field contains in addition a white noise component.