

Boris Spivak (University of Washington, Seattle, WA, USA)

Propagation of nonlinear waves in disordered media

We study the propagation of stationary waves in disordered non-linear media described by the nonlinear Schrödinger equation and show that for given boundary conditions the number of solutions of the equation increases exponentially with sample size. We discuss the ballistic case, the sensitivity of the solutions to the change of external parameters, and the similarity of this problem to the problem of spin glasses. We also discuss the relevance of our results to recent experiments on cold gases in atomic traps.