

Abstract

I will describe various percolation models in statistical physics, with emphasis on phase transition, critical phenomenon as well as disorder effects. In particular, I will start my talk with Bernoulli percolation, and then present a few important examples of correlated percolation models. While I try to be a "messenger" communicating progress accomplished in the community as a whole, the talk is inevitably biased by my personal interests (for instance, I will spend some time surveying recent progress on the random field Ising model and Gaussian free field related percolation models).