ABSTRACT

The first part of this diploma thesis is about the investigation of Kesten's near-critical scaling relation in corner percolation. In Section one we present this relation and go through the proof of it for the standard site percolation on triangular lattice. In Section two we describe the basic concept of corner percolation and describe some important attributes of the clusters of corner percolation. Among others we give the features of the infinite level sets in supercritical case, the exact form of the correlation length and the expected value of the number of pivotal lines. These enable us to investigate the correctness of Kesten's theorem in this case by estimating $\theta(p)$ via simulation.

The second part of the thesis is to give the reader an introduction into the basic concepts of the Trixor model, and examine some important features of its clusters. We prove the finiteness of the clusters, determine the up-and down-contours, and give an estimation for the one-arm exponent γ also via simulation.