

Abstract: The focus of the thesis is the convergence of irreducible aperiodic homogeneous Markov chains with a finite and discrete set of states. Specifically, lower bounds on the time needed for the chain's marginal probability distribution to be sufficiently close to the stationary distribution, so called mixing time. Multiple methods are introduced, properly motivated and proven. Finally, each method is demonstrated on a suitable example. The result is an overview of three methods that can be used to derive lower bounds for mixing time.