Title: **Chutes and Ladders in Markov Chains**

Author(s): **Persi Diaconis and Rick Durrett**

Technical Report number (Dept. of Statistics, Stanford Univ.): **2000-20**

Date: **May 2000**

Abstract:

We investigate how the stationary distribution of a Markov chain changes when transitions from a single state are modified. In particular, adding a single directed edge to nearest neighbor random walk on a finite discrete torus in dimensions one, two, or three changes the stationary distribution linearly, logarithmically, or only locally. Related results are derived for birth and death chains approximating Bessel diffusions and for random walk on the Sierpinski gasket.