1020-60-122 **Zach Dietz** and **Sunder Sethuraman*** (`sethuram@iastate.edu`). *Occupation laws for some Markov time-reinforcement schemes.*

We consider finite-state time-nonhomogeneous Markov chains whose transition matrix at time n is $I + G/n^{\zeta}$ where G is a "generator" matrix, that is $G(i,j) > 0$ for i, j distinct, and $G(i,i) = -\sum_{k \neq i} G(i,k)$, and $\zeta > 0$ is a parameter. In these chains, as time grows, the positions are less and less likely to change, and so form natural "reinforcement" schemes.

Although it is shown, on the one hand, that the position at time n converges to a point-mixture for all $\zeta > 0$, on the other hand, the average position up to time n, when variously $0 < \zeta < 1$, $\zeta > 1$ or $\zeta = 1$, is shown to converge to a constant, a point-mixture, or a distribution μ_G with no atoms and full support on a simplex respectively, as $n \uparrow \infty$. The last type of limit can be seen as a sort of "spreading" between the cases $0 < \zeta < 1$ and $\zeta > 1$.

In particular, when G is appropriately chosen, μ_G is a Dirichlet distribution with certain parameters, reminiscent of results in Polya urns. (Received August 25, 2006)