1095-60-65 **Karl Mahlburg*** (mahlburg@math.lsu.edu), Lockett Hall 228, Baton Rouge, LA 70803. *Markov processes, bootstrap percolation, and integer partitions.*

I will describe recent results at the intersection of combinatorial probability, the theory of integer partitions, and number theory. The calculation of metastability thresholds for bootstrap percolation models involves the limiting distribution of an infinite sequence of Markov processes with slowly changing parameters. This calculation is combinatorially equivalent to determining the analytic behavior of integer partitions with gap conditions, and specifically asymptotic formulas. Such formulas are further related to the behavior of certain hypergeometric q-series under modular transformations. In this talk, I will explain the interplay between these disparate threads. (Received August 26, 2013)