Speaker. Thomas Kaijser

Title. Iterations of random functions. Contraction properties and limit theorems.

Abstract. Let K be a state space and let $\{f_w : K \to K; w \in \mathcal{W}\}$ denote a set of mappings from K into K. Let $Y_i,\ i = 1, 2, ...$ be an i.i.d sequence of stochastic variables taking their values in the index set $\mathcal{W}$. For $n = 1, 2, ...$ define $H_n = f_{Y_n} \circ f_{Y_{n-1}} \circ ... \circ f_{Y_1}$.

There are many questions one can ask about the limit behaviour of the random quantity H_n. For example: 1) When does $H_n(x)$ converge in distribution and when is the limit distribution, if it exists, independent of x. 2) If we pick two points x and y in K at random and assume that K is a metric space with metric δ, when is it true that $\delta(H_n(x), H_n(y))$ tends to zero almost surely as n tends to infinity?

In my talk I will mainly discuss these two questions, the first question primarily when K is a compact space, the second question primarily when K is the circle.