

Title: Stable Laws for Random Dynamical Systems. Joint with Romain Aimino and Andrew Torok

Abstract: We consider random dynamical systems formed by concatenating maps acting on the unit interval $[0, 1]$ in an iid fashion. Considered as a stationary Markov process, the random dynamical system possesses a unique stationary measure ν . We consider a class of non square-integrable observables φ , mostly of form $\varphi(x) = d(x, x_0)^{-1/a}$ where x_0 is non-periodic point satisfying some other genericity conditions, and more generally regularly varying observables with index $a \in (0, 2)$. The two types of maps we concatenate are a class of piecewise C^2 expanding maps, and a class of intermittent maps possessing an indifferent fixed point at the origin. Under conditions on the dynamics and a we establish Poisson limit laws, convergence of scaled Birkhoff sums to a stable limit law and functional stable limit laws, in both the annealed and quenched case.