

Stochastic stability and limit theorems for coupled iterated function systems that contract on average

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Abstract

We define and explore the notion of finitely coupled iterated function system that satisfy a notion of contraction on average. We study the existence and uniqueness of an invariant probability measure for such systems by defining an appropriate transfer operator. Using results of Keller and Liverani on properties of perturbations of linear operators, the continuity of the invariant measure as the coupling tends to zero is proved. Other limit theorems, including a central limit theorem, can also be proved. This is joint work with Anthony Chiu.