

ITERATED RANDOM FUNCTIONS SYSTEMS

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(work in progress with W. WOESS)

We consider a proper metric space \mathbb{X} and a sequence $(f_n)_{n \geq 1}$ of i.i.d. random continuous mappings $\mathbb{X} \rightarrow \mathbb{X}$. It induces the stochastic process $X_n^x = f_n \circ \dots \circ f_1(x)$ starting at $x \in \mathbb{X}$. This process $(X_n^x)_{n \geq 1}$ is said to be generated by the **iterated random functions system** $(f_n)_{n \geq 0}$.

We will first present several classical examples: iteration of affine transformations of the real line, product of random matrices, transfer operators, reflected random walks on the real line, ...

We will focus our attention on the recurrence properties of the process $(X_n^x)_{n \geq 0}$ and on the existence and unicity of a (finite or infinite) invariant measure on \mathbb{X} .

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