

PROBABILITY THEORY SEMINAR

Random iterations of maps on \mathbb{R}^k

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This lecture will be held online on Zoom:

<https://us02web.zoom.us/j/81842601784?pwd=eWpvdVoyanVFVG90Y2lDNktRRWtWZz09>

Abstract. We study independent and identically distributed random iterations of continuous maps defined on a connected closed subset S of the Euclidean space \mathbb{R}^k . We assume the maps are monotone (with respect to a suitable partial order) and a “topological” condition on the maps. Then, we prove the existence of a pullback random attractor whose distribution is the unique stationary measure of the random iteration, and we obtain the synchronisation of random orbits. As a consequence of the synchronisation phenomenon, a Functional Central Limit Theorem is established.

References

- [1] E. Matias and E. Silva. *Random iterations of maps on \mathbb{R}^k : asymptotic stability, synchronization and functional central limit theorem*. *Nonlinearity*, Volume 34, Number 3, p. 1577–1597 (2021).