FUZZY-SET APPROACH TO INVARIANT IDEMPOTENT MEASURES

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During the talk I will present a new approach to the Hutchinson-Barnsley theory for idempotent measures first presented in [1]. The main feature developed here is a metrization of the space of idempotent measures using the embedding of the space of idempotent measures to the space of fuzzy sets. The metric obtained induces a topology stronger than the canonical pointwise convergence topology. A key result is the existence of a bijection between idempotent measures and fuzzy sets and a conjugation between the Markov operator of an IFS on idempotent measures and the fuzzy fractal operator of the associated Fuzzy IFS. This allows to prove that the Markov operator for idempotent measures is a contraction w.r.t. the induced metric and, from this, to obtain the existence of invariant idempotent measure.

References

[1] N. Mazurenko, M. Zarichnyi, *Invariant idempotent measures,* Carpathian Math. Publ., 10 (2018), 1, 172–178.

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