

The period-set of a map from the Cantor-Set to itself

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The talk is based on the joint work with James W. Cannon & Mark Meilstrup

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This piece of research was motivated by Sharkovskii's Theorem, which shows that the periods of the periodic points of a self-map of the unit-interval are severely restricted in the sense, that only tails of a non-standard linear order of the natural numbers can be realized as period-sets. In this research project we asked the analogous question for the Cantor-Set: Which period-sets can be realized by a (continuous) self-map f of the Cantor-Set to itself? – Although the proof of Sharkovskii's Theorem heavily relies on using the Intermediate Value Theorem which does by no means apply to the Cantor-Set, we came to the conclusion that some kind of restriction does even hold in case of the Cantor-Set: The talk will be devoted to state and sketch the proof of a Theorem confirming that, while an arbitrary subset of the natural numbers can occur as period-set of f as long as f is allowed to have aperiodic points or preperiodic points, a necessary and sufficient restriction for a set to become a period set of some f will be described for those f where each point of the Cantor set belongs to some period.