ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

9. Ordinary Differential Equations and Dynamical Systems

1991 MS Classification: 26A18, 54H20, 58F13

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Chaos and Topological Entropy in Onedimensional Dynamics

The topological structure of the space of continuous maps of the interval into itself with respect to Li-Yorke chaos, topological entropy and Sharkovsky's ordering is studied.

We also discuss the connection between chaos and topological sequence entropy for continuous selfmaps of the interval and of the circle. In 1991 N. Franzová and J. Smítal proved that a continuous map from the interval into itself is chaotic if and only if its topological sequence entropy relative to a suitable increasing sequence is positive. We show that for any increasing sequence there exists a chaotic continuous map of the interval into itself with zero topological sequence entropy relative to this sequence. The same results hold for the maps of the circle into itself.