Микола Матвійчук (Київський національний університет імені Тараса Шевченка, Україна)

Topological entropy for induced maps

For a dynamical system (I, f) given by a continuous map f on a closed interval I we investigate the induced system $(\mathcal{I}, \mathcal{F})$ on the space $\mathcal{I}$ of all closed subintervals of I with the Hausdorff metric. We prove $h(\mathcal{F}) = h(f)$. Thus there is no complexity in the behaviour of non-degenerate intervals.

Another situation we consider is when (I, f) induces a system on $S_H(I)$, the set of continuous maps $I \to I$ endowed with Hausdorff metric applied to the graphs of maps. Namely, the map $F : S_H(I) \to S_H(I)$ is given by $F(\phi) = f \circ \varphi$ (first apply φ) for any $\varphi \in S_H(I)$. In [1] was proved that $h(F) = 0$ if f has (Sharkovsky's) type $< 2^\infty$ and $h(F) = +\infty$ if f has type $> 2^\infty$ and asked if it is true that $h(F) = 0$ in the case when f has type 2^∞. We give an affirmative answer on this question.

[1] A.N. Sharkovsky and E.Yu. Romanenko, *Difference equations and dynamical systems generated by certain classes of boundary value problems*, Proc. Steklov Inst. Math. *244* (2004), 264–279.

[2] M. Matviichuk, *Entropy of induced maps for one-dimensional dynamics*, to appear in Proc. ECIT'08.