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## Some results on multidimensional perturbations of 1-dim maps

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We consider continuous maps  $F : \mathbb{R} \times \mathbb{R}^k \rightarrow \mathbb{R} \times \mathbb{R}^k$  which are close to  $F_0(x, y) = (f(x), 0)$ , where  $f : \mathbb{R} \rightarrow \mathbb{R}$  is continuous.

We address the following question, assume that  $f$  has an interesting dynamical property, will it continue to  $F$  if  $|F(z) - F_0(z)|$  is small for  $z$  in some suitable compact sets. In this context as the 'interesting dynamical properties' we will consider the set of periods and the topological entropy. We will present some positive answers in this direction.

- [1] P. Zgliczyński, *Sharkovskii's Theorem for multidimensional perturbations of one-dimensional maps*. Ergodic Theory and Dynamical Systems **19** (1999), 1655–1684.
- [2] M. Misiurewicz and P. Zgliczyński, *Topological entropy for multidimensional perturbations of one dimensional maps*. Int. J. of Bifurcation and Chaos **11** (2001), 1443–1446.
- [3] Ming-Chia Li and P. Zgliczyński, *On stability of forcing relations for multidimensional perturbations of interval maps*, preprint, <http://www.ii.uj.edu.pl/~zgliczyn/papers>.