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Abstracts of Short Communications and Posters

Section:

9. Ordinary Differential Equations
and Dynamical Systems

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On infinitely degenerate dynamical systems

Given an n-dimensional C^r-diffeomorphism f with a homo-/heteroclinic cycle C composed of finitely many periodic and connecting orbits one can easily evaluate an effective dimension d of the problem: the maximal possible number of zero Lyapunov exponents for periodic orbits which can be born in a small neighbourhood of C at small C^r-smooth perturbations.

Theorem. *At $d < n$, for any d-dimensional C^r-diffeomorphism g and for any $\varepsilon > 0$ there exists f^* arbitrarily close to f in C^r-topology such that f^* has an absorbing domain D (i. e., $(f^*)^N D \subset D$ for some positive N) in a small neighbourhood of C, and in D there is an attractive d-dimensional invariant manifold M such that $(f^*)^N|_M$ is C^r-conjugate to a diffeomorphism g^*, ε-close to g in C^r-topology.*