1018-37-252   **Anton Gorodetski*** (`asgor@caltech.edu`), Mathematics 253-37, Pasadena, CA 91125, and **Yulij Ilyashenko**, **Victor Kleptsyn** and **Maxim Nalsky**. *Nonremovable zero Lyapunov exponents.*

To what extent is the behavior of a generic dynamical system hyperbolic? A number of problems in modern theory of smooth dynamical systems can be viewed as some forms of this question. It was shown in the 1960s that uniformly hyperbolic systems (Anosov diffeomorphisms, Axiom A) are not dense in the space of dynamical systems. This necessitated weakening the notion of hyperbolicity. The notions of partial and nonuniform hyperbolicity (Pesin's theory) appeared. In Pesin's theory, hyperbolic behavior is characterized by nonzero Lyapunov exponents for some invariant measure. One can consider the case of a system with a smooth invariant measure. However, the question about Lyapunov exponents can be considered also for maps that do not a priori carry a natural invariant measure. We prove that in the space of difeomorphisms of a three- dimensional manifold, there exists an open set of mappings having an ergodic invariant measure with one of the Lyapunov exponents equal to zero. (Received March 07, 2006)