

Название публикации:

Search for Periodic Solutions of Highly Nonlinear Dynamical Systems

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Аннотация:

Numerical-analytical methods for finding periodic solutions of highly nonlinear autonomous and nonautonomous systems of ordinary differential equations are considered. Algorithms for finding initial conditions corresponding to a periodic solution are proposed. The stability of the found periodic solutions is analyzed using corresponding variational systems. The possibility of studying the evolution of periodic solutions in a strange attractor zone and on its boundaries is discussed, and interactive software implementations of the proposed algorithms are described. Numerical examples are given.

Ключевые слова:

highly nonlinear systems of ordinary differential equations; periodic solutions; stability of periodic solutions; strange attractor; deterministic chaos