

Cheban, David N.

Global attractors of non-autonomous quasi-homogeneous dynamical systems. (English)

Zbl 1008.34046

Electron. J. Differ. Equ. 2002, Paper No. 10, 19 p. (2002).

The author shows that a nonautonomous quasi-homogeneous differential equation $x' = f(x) + F(x, t)$, where $f(\lambda x) = \lambda^m f(x)$ for $\lambda > 0$ and $|F(x, t)| |x|^{-m} \rightarrow 0$ as $|x| \rightarrow \infty$, admits a compact global attractor if the homogeneous differential equation $x' = f(x)$ is asymptotically stable. The general result is applied to differential equations both in finite-dimensional spaces and in infinite-dimensional spaces, such as ordinary differential equations in Banach space and some types of evolutionary partial differential equations.

Reviewer: [Norbert Kokscha \(Dresden\)](#)

MSC:

- [34D45](#) Attractors of solutions to ordinary differential equations
- [34D23](#) Global stability of solutions to ordinary differential equations
- [34C11](#) Growth and boundedness of solutions to ordinary differential equations
- [34D20](#) Stability of solutions to ordinary differential equations
- [34G20](#) Nonlinear differential equations in abstract spaces

Cited in 1 Document

Keywords:

global attractor; nonautonomous dynamical system; quasi-homogeneous system; asymptotically compact system; skew product; Lyapunov functions

Full Text: [EMIS](#) [EuDML](#)