

Kim, Jong-Myung; Kye, Young-Hee; Lee, Keon-Hee

Weak attractors and Lyapunov-like functions. (English) Zbl 0964.37015

Commun. Korean Math. Soc. 11, No. 2, 457-462 (1996).

It is well-known that the qualitative behaviour of dynamical systems can be described in terms of invariant sets called attractors. In this note, the authors adapt the definition of attractor in a compact space in the sense of Conley, and then extend this concept to the dynamical system generated by a continuous map f on a noncompact space, which will be called the weak attractor of f . Recently *M. Hurley* [Proc. Am. Math. Soc. 115, 1139-1148 (1992; [Zbl 0759.58031](#))] proved that if \mathcal{A} is a weak attractor of a discrete dynamical system f then there exists a Lyapunov-like function for A . The purpose of this note is to investigate whether the converse of the above theorem does hold or not.

Reviewer: [Messoud Efendiev \(Berlin\)](#)

MSC:

[37C70](#) Attractors and repellers of smooth dynamical systems and their topological structure

[37B25](#) Stability of topological dynamical systems

[37C05](#) Dynamical systems involving smooth mappings and diffeomorphisms

Cited in **2** Documents

Keywords:

[invariant set](#); [attractor](#); [Lyapunov-like functions](#); [weak attractor](#)