ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

5. Differential Geometry and Global Analysis

1991 MS Classification: 58, 34

Gidea, Marian, Loyola University of Chicago

Non-Smooth Dynamical Systems that Exhibit Hyperbolic Behavior

The *Conley index theory* can be viewed as an extension of Morse theory to arbitrary flows defined on locally compact metric spaces.

We construct a new *Conley index for non-invariant sets* . We use this index to study the asymptotic behavior of some orbits relative to the reference orbit of the non-invariant set and to detect symbolic dynamics.

We extend the concept of hyperbolic system to non-smooth dynamical systems in terms of this new Conley index. Stability of the system, shadowing lemma and existence of Markov approximations can be proved under some topological assumptions.

Reference: M. Gidea, The Conley Index and Countable Decompositions of Invariant Sets, *Banach Center Publications*, to appear.