

NEW INVARIANTS OF TOPOLOGICAL CONJUGACY OF NON-INVERTIBLE INNER MAPPINGS

IGOR VLASENKO

*Inst. of Math.,
Kiev*

e-mail: vlasenko@imath.kiev.ua

Let $f : X \rightarrow X$ be an inner surjective map of a locally compact locally connected metric space X . Recall that an inner map is an open and isolated map. A map is open if the image of an open set is open. A map is isolated if the pre-image of a point consists of isolated points.

The book [1] and some earlier papers introduced a set of new invariants of topological conjugacy of non-invertible inner mappings that are modeled from the invariant sets of dynamical systems generated by homeomorphisms. Those new invariants are based on the analogy between the trajectories of a homeomorphism and the directions in the set of points having common image which is viewed as having 2 dimensions.

In particular, this papers introduced the sets of neutrally recurrent and the neutrally non-wandering points related to the dynamics of points and neighborhoods in that “extra” dimension. Those invariants provide a natural language for the topological classification of many classes of polynomial maps and also allow to define analogs of many well known classes of invertible maps such as Smale diffeomorphisms for the non-invertible inner maps.

References

- [1] I. Yu. Vlasenko, *Inner mappings: topological invariants and their applications*. Inst. of Math, Kiev (2014).