

On topological properties of flows of Brouwer homeomorphisms

Zbigniew Leśniak

Institute of Mathematics
Pedagogical University
Podchorążych 2
30-084 Kraków, Poland
zlesniak@up.krakow.pl

We study the problem of topological conjugacy of flows of Brouwer homeomorphisms. By a Brouwer homeomorphism we mean a fixed point free homeomorphism of the plane onto itself which preserves orientation. We show that the set of all strongly irregular points of a Brouwer homeomorphism is equal to the first prolongational limit set of any flow containing this homeomorphism. The first prolongational limit set plays an important role in studying properties of a homeomorphism which realizes the topological equivalence between Brouwer flows. We give a necessary and sufficient condition for topologically equivalent Brouwer flows to be topologically conjugated. The condition describes the relationship between the transition maps of the flows. Moreover, we consider an invariant which distinguishes flows conjugate to standard Brouwer flows.

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