

A topological degree theory for rotating solutions of planar systems

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Talk Abstract

We present a generalized notion of degree for rotating solutions of planar systems. We prove a formula for the relation of such degree with the classical use of Brouwer's degree and obtain a twist fixed-point theorem providing information of the rotation number of the associated periodic solutions [1]. We then apply the result in a short proof of the sharp lower bound on the number of periodic solutions of planar Hamiltonian systems asymptotically linear at zero and infinity [2], illustrating the complementarity of our theorem with the Poincaré–Birkhoff Theorem.

Keywords: periodic solutions, fixed-point theorem, Maslov's index, asymptotically linear Hamiltonian systems.

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References

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