



Bifurcation diagrams for Hamiltonian nilpotent centers of linear plus cubic homogeneous polynomial vector fields

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Abstract

Following the work done in [8] we provide the bifurcation diagrams for the global phase portraits in the Poincaré disk of all Hamiltonian nilpotent centers of linear plus cubic homogeneous planar polynomial vector fields.

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1. Introduction and statement of the main results

To distinguish when a singular point of a real planar polynomial differential system is a focus or a center is one of the main problems in the qualitative theory of differential systems. The definition of a *center* mainly goes back to Poincaré, who in [18] defines a *center* for a vector field on the real plane as a singular point having a neighborhood filled with periodic orbits with the exception of the singular point.

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