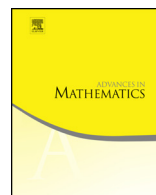




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Hamiltonian nilpotent centers of linear plus cubic homogeneous polynomial vector fields



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ABSTRACT

We provide normal forms and the global phase portraits in the Poincaré disk for 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

Determining limit cycles and distinguishing when a singular point is either a focus or a center are two of the main problems in the qualitative theory of real planar polynomial differential systems. Poincaré, in [18], defines a *center* for a vector field on the real plane

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