Nilpotent saddles of linear plus cubic homogeneous polynomial reversible vector fields

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A R T I C L E   I N F O

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We provide normal forms and the global phase portraits in the Poincaré disk for all planar polynomial vector fields of the form lineal plus cubic homogeneous that are symmetric with respect to the x-axis or to the y-axis and having a nilpotent saddle at the origin.

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1. Introduction and statement of the results

Quadratic systems have been widely studied in the last 100 years, and more than 1.000 papers have been published about them. The classification of centers for quadratic polynomial differential systems goes back mainly to Dulac [5], Kapteyn [7,8] and Bautin [2]. In [9] Vulpe provides all the global phase portraits of quadratic polynomial differential

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