

一类七次多项式微分系统的中心条件与赤道极限环分支

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摘要 研究了一类七次系统无穷远点的中心条件与赤道极限环分支问题. 通过将实系统转化为复系统研究, 给出了计算无穷远点奇点量的递推公式, 并在计算机上用Mathematica推导出该系统无穷远点前14个奇点量, 进一步导出了无穷远点成为中心的条件和14阶细焦点的条件, 在此基础上得到了七次系统无穷远点分支出12个极限环的一个实例.

关键词 [七次多项式系统](#), [无穷远点](#), [焦点量](#), [奇点量](#), [极限环分支](#).

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Center Conditions and Bifurcation of Limit Cycles at the Equator in a Class of Seven Degree Polynomial Differential System

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Abstract Center conditions and bifurcation of limit cycles from the equator in a class of polynomial system of degree seven are studied. By converting real planar system into complex system, the recursion formula for the computation of singular point quantities of the infinity are given, and with computer algebra system Mathematica, the first 14 singular point quantities of the infinity are deduced. At the same time, the conditions for the infinity to be a center and 14 degree fine focus are derived respectively. According to the above, a system of degree seven that bifurcates 12 limit cycles from the infinity is constructed.

Key words [Polynomial system of degree seven](#) [infinity](#) [singular point quantity](#) [bifurcation of limit cycle](#).

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