



■ 论文摘要

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一类平面三次多项式系统的赤道极限环分支

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摘要: 研究了一类平面三次多项式系统赤道极限环分支问题, 给出了易于计算的系统赤道环量的代数递推公式. 同时, 计算了一类三次系统的前6个赤道环量, 得到了系统在赤道邻域的可积性条件及在赤道附近存在5个极限环的系数条件, 给出了一个平面三次系统在赤道附近分支出5个极限环的计算实例, 并在不构造Poincare环域的情况下, 指出了极限环存在的位置.

关键字: 三次系统; 赤道环量; 稳定性; 可积性; 极限环分支

Bifurcation of limit cycles of the equator in a class of cubic polynomial system

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Abstract: The bifurcation of limit cycles of the equator in a class of cubic polynomial vector fields with no singular points at infinity was studied. Recursion formulas for quantities at infinity in this system were presented. As a result of application, an expression of the first six quantities at infinity of a cubic system and the integrability conditions and the condition was researched, which allows the appearance of five limit cycles in the neighborhood of the equator of this system. Consequently, an example of cubic system with five limit cycles bifurcating from the equator was given. The positions of these limit cycles without constructing Poincare cycle fields can be pointed out exactly.

Key words: cubic system; quantity of equator; stability; integrability; bifurcation of limit cycles

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