Original Articles

Number and Location of Limit Cycles in a Class of Perturbed Polynomial Systems

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摘要　　In this paper, we investigate the number, location and

stability of limit cycles in a class of perturbed polynomial

systems with $(2n+1)$ or $(2n+2)$-degree by constructing detection

function and using qualitative analysis. We show that there are at

most n limit cycles in the perturbed polynomial system, which is

similar to the result of Perko in [8] by using Melnikov method.

For $n=2$, we establish the general conditions depending on

polynomial's coefficients for the bifurcation, location and

stability of limit cycles. The bifurcation parameter value of

limit cycles in [5] is also improved by us. When $n=3$ the

sufficient and necessary conditions for the appearance of 3 limit

cycles are given. Two numerical examples for the location and

stability of limit cycles are used to demonstrate our theoretical

results.
关键词　　polynomial system, limit cycles, stability, bifurcation
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Abstract

Key words

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