

Theme : Number of limit cycles of perturbed polynomial differential systems with linear centers

## Abstract

In this thesis we study the limit cycles of two classes of ordinary differential systems depending of small parameter. Using a theorem of first and second order averaging theory we transform the study of limit cycles of ordinary differential systems to the study of non-degenerate zeros of an algebraic systems.

The first class deals with the generalized polynomial differential system

The second class is studied the generalized polynomial Kukles differential system.

This study is illustrated by examples .

## Key words

Dynamical system - limit cycle - Kukles systems - polynomial systems - averaging theory .