The Center and Focus Problem
Algebraic Solutions and Hypotheses
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Description:
This book focuses on an old problem of the qualitative theory of differential equations, called the Center and Focus Problem. It is intended for mathematicians, researchers, professors and Ph.D. students working in the field of differential equations, as well as other specialists who are interested in the theory of Lie algebras, commutative graded algebras, the theory of generating functions and Hilbert series. The book reflects the results obtained by the authors in the last decades.

A rather essential result is obtained in solving Poincaré's problem. Namely, there are given the upper estimations of the number of Poincaré-Lyapunov quantities, which are algebraically independent and participate in solving the Center and Focus Problem that have not been known so far. These estimations are equal to Krull dimensions of Sibirsky graded algebras of comitants and invariants of systems of differential equations.