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Lyapunov Exponents and Stability Theory

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This monograph deals with one of two basic methods of stability investigation of solutions to differential systems – the method of characteristic Lyapunov indices. It provides necessary knowledge from modern theory of Lyapunov indices and presents results of the author who is a leading expert in this field. Main attention is focused on the following areas:

- the theory of low Perrone indices, general Bole indices, central Vinograd indices and the author's exponential indices
- the freezing method
- investigation of effect of exponentially decreasing perturbations on characteristic indices of linear differential systems
- stability of characteristic indices of linear systems with respect to small perturbations
- Lyapunov problem on investigation of asymptotic stability with respect to linear approximation
- Millionschikov method of turnings and its methodical application in modern theory of Lyapunov indices

Requiring only a fundamental knowledge of general stability theory, this book serves as an excellent text for graduate students studying ordinary differential equations and stability theory as well as a useful reference for analysts interested in applied mathematics.

CONTENTS

Preface • The Lyapunov Characteristic Exponent • The Lower Perron Exponent • The Exponents of Linear Systems • Millionschikov's Method of Rotations • Positional Relationship Exponents of Linear Systems • Lyapunov Transformations • On the Freezing Method • Linear Systems Under Special Perturbations • The Principal Sigma-exponent of a Linear System • Stability of Characteristic Exponents of Linear Systems • Asymptotic Stability by First Approximation • References • Index

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