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Uncertain Dynamical Systems: Stability and Motion Control

Pure and Applied Mathematics and Mechanics: Volume 1
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This self-contained book provides systematic instructive analysis of uncertain systems of the following types: ordinary differential equations, impulsive equations, equations on time scales, fuzzy differential equations, and set differential equations. Each chapter of the book contains new conditions of stability of unperturbed motion of above mentioned type of equations and some applications. As a relatively new area in applied mathematics, uncertain dynamical systems are still at a tender age and have not yet received much attention in the mathematical community. Without assuming specific knowledge of uncertain dynamical systems, the book includes many fundamental facts about dynamical behaviour of its solutions. Giving a concise review of current research developments, *Uncertain Dynamical Systems: Stability and Motion Control*

- details all proofs of stability conditions for five classes of uncertain systems
- clearly defines all used notions of stability and control theory
- contains an extensive bibliography, facilitating quick access to specific subject areas of each of 10 chapters.

Requiring only a fundamental knowledge of general theory of differential equations and calculus, this book serves as an excellent text for pure and applied mathematicians, applied physicists, industrial engineers, operations researchers, and upper-level undergraduate and graduate students studying ordinary differential equations, Impulsive equations, dynamic equations on time scales, fuzzy and set differential equations.

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