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Fuzzy Differential Equations in Various Approaches

Series: SpringerBriefs in Mathematics

- Reference text for researchers and graduate students
- Provides an overview of the fuzzy differential equations theories and fuzzy differential inclusions
- Interprets and compares various fuzzy differential equations theories

This book may be used as reference for graduate students interested in fuzzy differential equations and researchers working in fuzzy sets and systems, dynamical systems, uncertainty analysis, and applications of uncertain dynamical systems. Beginning with a historical overview and introduction to fundamental notions of fuzzy sets, including different possibilities of fuzzy differentiation and metric spaces, this book moves on to an overview of fuzzy calculus thorough exposition and comparison of different approaches. Innovative theories of fuzzy calculus and fuzzy differential equations using fuzzy bunches of functions are introduced and explored. Launching with a brief review of essential theories, this book investigates both well-known and novel approaches in this field; such as the Hukuhara differentiability and its generalizations as well as differential inclusions and Zadeh's extension. Through a unique analysis, results of all these theories are examined and compared.

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