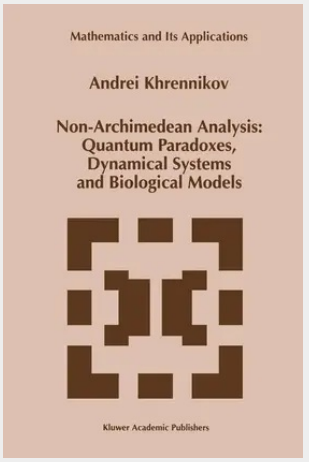
Khrennikov

Non-Archimedean Analysis: Quantum Paradoxes, Dynamical Systems and Biological Models



N atur non facit saltus? This book is devoted to the fundamental problem which arises contin uously in the process of the human investigation of reality: the role of a mathematical apparatus in a description of reality. We pay our main attention to the role of number systems which are used, or may be used, in this process. We shall show that the picture of reality based on the standard (since the works of Galileo and Newton) methods of real analysis is not the unique possible way of presenting reality in a human brain. There exist other pictures of reality where other num ber fields are used as basic elements of a mathematical description. In this book we try to build a p-adic picture of reality based on the fields of p-adic numbers Qp and corresponding analysis (a particular case of so called non-Archimedean analysis). However, this book must not be considered as only a book on p-adic analysis and its applications. We study a much more extended range of problems. Our philosophical and physical ideas can be realized in other mathematical frameworks which are not obliged to be based on p-adic analysis. We shall show that many problems of the description of reality with the aid of real numbers are induced by unlimited applications of the so called Archimedean axiom.

N atur non facit saltus? This book is devoted to the fundamental problem which arises contin uously in the process of the human investigation of reality: the role of a mathematical apparatus in a description of reality. We pay our main attention to the role of number systems which are used, or may be used, in this process. We shall show that the picture of reality based on the standard (since the works of Galileo and Newton) methods of real analysis is not the unique possible way of presenting reality in a human brain. There exist other pictures of reality where other num ber fields are used as basic elements of a mathematical description. In this book we try to build a p-adic picture of reality based on the fields of p-adic numbers Qp and corresponding analysis (a particular case of so called non-Archimedean analysis). However, this book must not be considered as only a book on p-adic analysis and its applications. We study a much more extended range of problems. Our philosophical and physical ideas can be realized in other mathematical frameworks which are not obliged to be based on p-adic analysis. We shall show that many problems of the description of reality with the aid of real numbers are induced by unlimited applications of the so called Archimedean axiom.

106,99 €
99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780792348009
Medium: Buch
ISBN: 978-0-7923-4800-9
Verlag: Springer Netherlands
Erscheinungstermin: 30.09.1997
Sprache(n): Englisch
Auflage: 1. Auflage 1997
Serie: Mathematics and Its Applications
Produktform: Gebunden
Gewicht: 1610 g
Seiten: 376
Format (B x H): 160 x 241 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)