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| Autore                  | Tarafdar Enayet U (Enayet Ullah)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Altri autori (Persone)  | ChowdhuryMohammad S. R <1959-> (Mohammad Showkat Rahim)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Soggetti                | Set-valued maps<br>Nonlinear functional analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Nota di contenuto       | Contents; Preface; 1. Introduction; 2. Contraction Mappings; 2.1 Contraction Mapping Principle in Uniform Topological Spaces and Applications; 2.2 Banach Contraction Mapping Principle in Uniform Spaces; 2.2.1 Successive Approximation; 2.3 Further Generalization of Banach Contraction Mapping Principle; 2.3.1 Fixed Point Theorems for Some Extension of Contraction Mappings on Uniform Spaces; 2.3.2 An Interplay Between the Order and Pseudometric Partial Ordering in Complete Uniform Topological Space; 2.4 Changing Norm; 2.4.1 Changing the Norm; 2.4.2 On the Approximate Iteration<br>2.5 The Contraction Mapping Principle Applied to the Cauchy-Kowalevsky Theorem2.5.1 Geometric Preliminaries; 2.5.2 The Linear Problem; 2.5.3 The Quasilinear Problem; 2.6 An Implicit Function Theorem for a Set of Mappings and Its Application to Nonlinear Hyperbolic Boundary Value Problem as Application of Contraction Mapping Principle; 2.6.1 An Implicit Function Theorem for a Set of Mappings; 2.6.2 Notations and Preliminaries; 2.6.3 Results of Smiley on |

Linear Problem; 2.6.4 Alternative Problem and Approximate Equations  
 2.6.5 Application to Nonlinear Wave Equations - A Theorem of Paul Rabinowitz  
 2.7 Set-Valued Contractions; 2.7.1 End Points; 2.8 Iterated Function Systems (IFS) and Attractor; 2.8.1 Applications; 2.9 Large Contractions; 2.9.1 Large Contractions; 2.9.2 The Transformation; 2.9.3 An Existence Theorem; 2.10 Random Fixed Point and Set-Valued Random Contraction; 3. Some Fixed Point Theorems in Partially Ordered Sets; 3.1 Fixed Point Theorems and Applications to Economics; 3.2 Fixed Point Theorem on Partially Ordered Sets; 3.3 Applications to Games and Economics; 3.3.1 Game; 3.3.2 Economy; 3.3.3 Pareto Optimum; 3.3.4 The Contraction Mapping Principle in Uniform Space via Kleene's Fixed Point Theorem; 3.3.5 Applications on Double Ranked Sequence; 3.4 Lattice Theoretical Fixed Point Theorems of Tarski; 3.5 Applications of Lattice Fixed Point Theorem of Tarski to Integral Equations; 3.6 The Tarski-Kantorovitch Principle; 3.7 The Iterated Function Systems on  $(2X; \cdot)$ ; 3.8 The Iterated Function Systems on  $(C(X); \cdot)$ ; 3.9 The Iterated Function System on  $(K(X); \cdot)$ ; 3.10 Continuity of Maps on Countably Compact and Sequential Spaces; 3.11 Solutions of Impulsive Differential Equations  
 3.11.1 A Comparison Result .3.11.2 Periodic Solutions; 4. Topological Fixed Point Theorems; 4.1 Brouwer Fixed Point Theorem; 4.1.1 Schauder Projection; 4.1.2 Fixed Point Theorems of Set Valued Mappings with Applications in Abstract Economy; 4.1.3 Applications; 4.1.4 Equilibrium Point of Abstract Economy; 4.2 Fixed Point Theorems and KKM Theorems; 4.2.1 Duality in Fixed Point Theory of Set Valued Mappings; 4.3 Applications on Minimax Principles; 4.3.1 Applications on Sets with Convex Sections; 4.4 More on Sets with Convex Sections; 4.5 More on the Extension of KKM Theorem and Ky Fan's Minimax Principle

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## Sommario/riassunto

This book provides a comprehensive overview of the authors' pioneering contributions to nonlinear set-valued analysis by topological methods. The coverage includes fixed point theory, degree theory, the KKM principle, variational inequality theory, the Nash equilibrium point in mathematical economics, the Pareto optimum in optimization, and applications to best approximation theory, partial equations and boundary value problems. Self-contained and unified in presentation, the book considers the existence of equilibrium points of abstract economics in topological vector spaces from the viewpo

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