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| Autore | Du Yihong <jin shi 1761.> |
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| Nota di contenuto | Contents ; Preface ; 1. Krein-Rutman Theorem and the Principal Eigenvalue ; 2. Maximum Principles Revisited ; 2.1 Equivalent forms of the maximum principle ; 2.2 Maximum principle in $W_2^1(\Omega)$; 3. The Moving Plane Method ; 3.1 Symmetry over bounded domains ; 3.2 Symmetry over the entire space ; 3.3 Positivity of nonnegative solutions ; 4. The Method of Upper and Lower Solutions ; 4.1 Classical upper and lower solutions ; 4.2 Weak upper and lower solutions ; 5. The Logistic Equation ; 5.1 The classical case ; 5.2 The degenerate logistic equation ; 5.3 Perturbation and profile of solutions ; 6. Boundary Blow-Up Problems ; 6.1 The Keller-Osserman result and its generalizations ; 6.2 Blow-up rate and uniqueness ; 6.3 |

Logistic type equations with weights

7. Symmetry and Liouville Type Results over Half and Entire Spaces

7.1 Symmetry in a half space without strong maximum principle

; 7.2 Uniqueness results of logistic type equations over \mathbb{R}^N

; 7.3 Partial symmetry in the entire space

; 7.4 Some Liouville type results

Appendix A Basic Theory of Elliptic Equations

A.1 Schauder theory for elliptic equations

; A.2 Sobolev spaces

; A.3 Weak solutions of elliptic

equations

; A.4 LP theory of elliptic

equations

; A.5 Maximum principles for

elliptic equations

; A.5.1 The classical

maximum principles

A.5.2 Maximum principles and Harnack inequality for weak solutions

Sommario/riassunto

The maximum principle induces an order structure for partial differential equations, and has become an important tool in nonlinear analysis. This book is the first of two volumes to systematically introduce the applications of order structure in certain nonlinear partial differential equation problems. The maximum principle is revisited through the use of the Krein-Rutman theorem and the principal eigenvalues. Its various versions, such as the moving plane and sliding plane methods, are applied to a variety of important problems of current interest. The upper and lower solution method, espec
