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Autore	Lui S. H (Shaun H.), <1961->
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6.5 Spectral Collocation for Heat Equation6.6 Finite Difference Scheme for Wave Equation; 6.7 Dispersion; 6.8 Summary and Exercises; 7 Multigrid; 7.1 Introduction; 7.2 Two-Grid Method; 7.3 Practical Multigrid Algorithms; 7.4 Finite Element Multigrid; 7.5 Summary and Exercises; 8 Domain Decomposition; 8.1 Overlapping Schwarz Methods; 8.2 Orthogonal Projections; 8.3 Non-overlapping Schwarz Method; 8.4 Substructuring Methods; 8.5 Optimal Substructuring Methods; 8.6 Summary and Exercises; 9 Infinite Domains; 9.1 Absorbing Boundary Conditions; 9.2 Dirichlet-Neumann Map; 9.3 Perfectly Matched Layer
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Sommario/riassunto

A balanced guide to the essential techniques for solving elliptic partial differential equations Numerical Analysis of Partial Differential Equations provides a comprehensive, self-contained treatment of the quantitative methods used to solve elliptic partial differential equations (PDEs), with a focus on the efficiency as well as the error of the presented methods. The author utilizes coverage of theoretical PDEs, along with the nu merical solution of linear systems and various examples and exercises, to supply readers with an introduction to the essential concepts in the num