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# Elliptic Equations in Polyhedral Domains

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This is the first monograph which systematically treats elliptic boundary value problems in domains of polyhedral type. The authors mainly describe their own recent results focusing on the Dirichlet problem for linear strongly elliptic systems of arbitrary order, Neumann and mixed boundary value problems for second order systems, and on boundary value problems for the stationary Stokes and Navier–Stokes systems. A feature of the book is the systematic use of Green’s matrices. Using estimates for the elements of these matrices, the authors obtain solvability and regularity theorems for the solutions in weighted and non-weighted Sobolev and Hölder spaces. Some classical problems of mathematical physics (Laplace and biharmonic equations, Lamé system) are considered as examples. Furthermore, the book contains maximum modulus estimates for the solutions and their derivatives.



The exposition is self-contained, and an introductory chapter provides background material on the theory of elliptic boundary value problems in domains with smooth boundaries and in domains with conical points.

The book is destined for graduate students and researchers working in elliptic partial differential equations and applications.



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