1. **Record Nr.** UNINA9910462849403321

Autore Lieberman Gary M. <1952->

Titolo Oblique derivative problems for elliptic equations [[electronic resource] /] / Gary M Lieberman

Pubbl/distr/stampa Singapore, : World Scientific, 2013

ISBN 981-4452-33-5

Descrizione fisica 1 online resource (528 p.)

Disciplina 515.3533

Soggetti Differential equations, Elliptic
Differential equations, Partial
Electronic books.

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Note generali Description based upon print version of record.

Nota di bibliografia Includes bibliographical references and index.

Nota di contenuto Preface; Contents; 1. Pointwise Estimates; Introduction; 1.1 The maximum principle; 1.2 The definition of obliqueness; 1.3 The case c < 0, 0   0; 1.4 A generalized change of variables formula; 1.5 The Aleksandrov-Bakel'man-Pucci maximum principles; 1.6 The interior weak Harnack inequality; 1.7 The weak Harnack inequality at the boundary; 1.8 The strong maximum principle and uniqueness; 1.9 Holder continuity; 1.10 The local maximum principle; 1.11 Pointwise estimates for solutions of mixed boundary value problems; 1.12 Derivative bounds for solutions of elliptic equations; Exercises
2. Classical Schauder Theory from a Modern PerspectiveIntroduction; 2.1 Definitions and properties of Holder spaces; 2.2 An alternative characterization of Holder spaces; 2.3 An existence result; 2.4 Basic interior estimates; 2.5 The Perron process for the Dirichlet problem; 2.6 A model mixed boundary value problem; 2.7 Domains with curved boundary; 2.8 Fredholm-Riesz-Schauder theory; Notes; Exercises; 3. The Miller Barrier and Some Supersolutions for Oblique Derivative Problems; Introduction; 3.1 Theory of ordinary differential equations; 3.2 The Miller barrier construction
3.3 Construction of supersolutions for Dirichlet data3.4 Construction of a supersolution for oblique derivative problems; 3.5 The strong maximum principle, revisited; 3.6 A Miller barrier for mixed boundary value problems; Notes; Exercises; 4. Holder Estimates for First and

Sommario/riassunto

This book gives an up-to-date exposition on the theory of oblique derivative problems for elliptic equations. The modern analysis of shock reflection was made possible by the theory of oblique derivative problems developed by the author. Such problems also arise in many other physical situations such as the shape of a capillary surface and problems of optimal transportation. The author begins the book with basic results for linear oblique derivative problems and work through the theory for quasilinear and nonlinear problems. The final chapter discusses some of the applications. In addition, no