

1. Record Nr.	UNINA9910338246003321
Autore	Lerner Nicolas
Titolo	Carleman Inequalities : An Introduction and More // by Nicolas Lerner
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-15993-0
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (577 pages)
Collana	Grundlehren der mathematischen Wissenschaften, A Series of Comprehensive Studies in Mathematics, , 0072-7830 ; ; 353
Disciplina	515.26
Soggetti	Operator theory Differential equations, Partial Operator Theory Partial Differential Equations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 Prolegomena -- 2 A Toolbox for Carleman Inequalities -- 3 Operators with Simple Characteristics: Calderon's Theorems -- 4 Pseudo-convexity: Hormander's Theorems -- 5 Complex Coefficients and Principal Normality -- 6 On the Edge of Pseudo-convexity -- 7 Operators with Partially Analytic Coefficients -- 8 Strong Unique Continuation Properties for Elliptic Operators -- 9 Carleman Estimates via Brenner's Theorem and Strichartz Estimates -- 10 Elliptic Operators with Jumps; Conditional Pseudo-convexity -- 11 Perspectives and Developments -- A Elements of Fourier Analysis -- B Miscellanea -- References -- Index.
Sommario/riassunto	Over the past 25 years, Carleman estimates have become an essential tool in several areas related to partial differential equations such as control theory, inverse problems, or fluid mechanics. This book provides a detailed exposition of the basic techniques of Carleman Inequalities, driven by applications to various questions of unique continuation. Beginning with an elementary introduction to the topic, including examples accessible to readers without prior knowledge of advanced mathematics, the book's first five chapters contain a thorough exposition of the most classical results, such as Calderón's and Hörmander's theorems. Later chapters explore a selection of

results of the last four decades around the themes of continuation for elliptic equations, with the Jerison-Kenig estimates for strong unique continuation, counterexamples to Cauchy uniqueness of Cohen and Alinhac & Baouendi, operators with partially analytic coefficients with intermediate results between Holmgren's and Hörmander's uniqueness theorems, Wolff's modification of Carleman's method, conditional pseudo-convexity, and more. With examples and special cases motivating the general theory, as well as appendices on mathematical background, this monograph provides an accessible, self-contained basic reference on the subject, including a selection of the developments of the past thirty years in unique continuation.

---