

1. Record Nr.	UNINA9910254077903321
Autore	Choulli Mourad
Titolo	Applications of Elliptic Carleman Inequalities to Cauchy and Inverse Problems // by Mourad Choulli
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-33642-8
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (IX, 81 p.)
Collana	SpringerBriefs in Mathematics, , 2191-8201
Disciplina	515.26
Soggetti	Differential equations Mathematical physics Cancer Mathematics Engineering mathematics Engineering - Data processing Differential Equations Mathematical Methods in Physics Cancer Biology Applications of Mathematics Mathematical and Computational Engineering Applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 Preliminaries -- 2 Uniqueness of continuation and Cauchy problems -- 3 Determining the surface impedance of an obstacle from the scattering amplitude -- 4 Determining a corrosion coecient from a boundary measurement and an attenuation coecient from an internal measurement.
Sommario/riassunto	This book presents a unified approach to studying the stability of both elliptic Cauchy problems and selected inverse problems. Based on elementary Carleman inequalities, it establishes three-ball inequalities, which are the key to deriving logarithmic stability estimates for elliptic Cauchy problems and are also useful in proving stability estimates for certain elliptic inverse problems. The book presents three inverse

problems, the first of which consists in determining the surface impedance of an obstacle from the far field pattern. The second problem investigates the detection of corrosion by electric measurement, while the third concerns the determination of an attenuation coefficient from internal data, which is motivated by a problem encountered in biomedical imaging.
