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Titolo	Inverse Problems in Mathematical Physics [[electronic resource]] : Proceedings of The Lapland Conference on Inverse Problems Held at Saariselkä, Finland, 14–20 June 1992 / / edited by Lassi Päivärinta, Erkki Somersalo
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Collana	Lecture Notes in Physics, , 0075-8450 ; ; 422
Disciplina	530.1
Soggetti	Mathematical physics Observations, Astronomical Astronomy—Observations Astrophysics Geophysics Theoretical, Mathematical and Computational Physics Astronomy, Observations and Techniques Astrophysics and Astroparticles Geophysics/Geodesy
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Stability for the crack determination problem -- Layer-stripping reconstruction algorithms in impedance imaging -- Determination of the inhomogeneous term in evolution equations -- Target signatures for Maxwell's equations -- The use of Graßmann identities for inversion of a general model in diffuse tomography -- Generic uniqueness and stability in some inverse parabolic problem -- Regularization — Analytic and stochastic aspects -- Problems in impedance imaging -- Uniqueness for inverse problems in quasilinear differential equations -- Diffraction by periodic structures -- On uniqueness in inverse obstacle scattering -- The inverse Scattering Problem for a homogeneous Bi-isotropic Slab Using Transient data -- On the inverse scattering problem for rational reflection coefficients -- Some

geometric aspects of multidimensional inverse spectral problems -- Three dimensional time harmonic inverse electromagnetic scattering -- Determination of a radially symmetric speed of sound from transmission eigenvalues -- A finite difference method for the inverse scattering problem at fixed frequency -- Present status of the generalized Marchenko method for the solution of the inverse scattering problem in three dimensions -- Inverse spectral problems in riemannian geometry -- Local results for a two dimensional inverse conductivity problem -- Inverse scattering at fixed energy for exponentially decreasing potentials -- Inverse problems related to integrable nonlinear partial differential equations -- Some estimates of green function and applications in inverse scattering theory for the Schrödinger operator with a singular potential -- Reconstruction of electromagnetic parameters from boundary measurements -- Inverse boundary value problems for Schrödinger operators -- Linearizations of anisotropic inverse problems -- Optimal parameter choice for Tikhonov regularization in Hilbert scales -- Identification of the filtration coefficient.

Sommario/riassunto

The book contains presentations of recent and ongoing research on inverse problems and its application to engineering and physical sciences. The articles are structured around three closely related topics: Inverse scattering problems, inverse boundary value problems, and inverse spectral problems. The applications range from quantum and electromagnetic scattering to medical imaging, geophysical sounding of the Earth, and non-destructive material evaluation. The book gives an up-to-date presentation of the most recent developments in these rapidlychanging and evolving fields of applied research. The contributors of the volume give extra emphysis to the pedagogical aspects of their presentation to make this collection eysily accessible to graduate students as well as to people working on nearby fields of research.