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   Autore   Ang Dang D

   Titolo   Moment Theory and Some Inverse Problems in Potential Theory and Heat Conduction [[electronic resource] /] / by Dang D. Ang, Rudolf Gorenflo, Vy K. Le, Dang D. Trong

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   Edizione   [1st ed. 2002.]

   Descrizione fisica   1 online resource (X, 186 p.)

   Collana   Lecture Notes in Mathematics, , 0075-8434 ; ; 1792

   Disciplina   510

   Soggetti   Functions of complex variables
                          Potential theory (Mathematics)
                          Partial differential equations
                          Integral transforms
                          Operational calculus
                          Integral equations
                          Operator theory
                          Functions of a Complex Variable
                          Potential Theory
                          Partial Differential Equations
                          Integral Transforms, Operational Calculus
                          Integral Equations
                          Operator Theory

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico Monografia

   Note generali   Bibliographic Level Mode of Issuance: Monograph

   Nota di contenuto   Introduction -- Mathematical Preliminaries -- Regularization of moment problems by trancated expansion and by the Tikhonov method -- Backus-Gilbert regularization of a moment problem -- The Hausdorff moment problem: regularization and error estimates -- Analytic functions: reconstruction and Sinc approximations -- Regularization of some inverse problems in potential theory -- Regularization of some inverse problems in heat conduction -- Epilogue -- References -- Index.

Sommario/riassunto   Moment Theory is not a new subject; however, in classical treatments, the ill-posedness of the problem is not taken into account - hence this monograph. Assuming a "true" solution to be uniquely determined by a sequence of moments (given as integrals) of which only finitely many are inaccurately given, the authors describe and analyze several regularization methods and derive stability estimates. Mathematically, the task often consists in the reconstruction of an analytic or harmonic function, as is natural from concrete applications discussed (e.g. inverse heat conduction problems, Cauchy's problem for the Laplace equation, gravimetry). The book can be used in a graduate or upper undergraduate course in Inverse Problems, or as supplementary reading for a course on Applied Partial Differential Equations.