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Autore	Danilaev P. G.
Titolo	Coefficient inverse problems for parabolic type equations and their application / / P.G. Danilaev
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front matter -- Contents -- Preface -- Chapter 1. On the ill-posedness of coefficient inverse problems and the general approach to the study of them -- Chapter 2. Determining the coefficient of the lowest term of equation -- Chapter 3. Determining of the coefficient for the leading terms of equation -- Chapter 4. Modification of the method of determining the coefficient of the leading terms in an equation -- Chapter 5. Generalizations of the developed algorithm for solving coefficient inversion problems -- Chapter 6. On applications of coefficient inverse problems in underground fluid dynamics -- Summary -- Bibliography
Sommario/riassunto	As a rule, many practical problems are studied in a situation when the input data are incomplete. For example, this is the case for a parabolic partial differential equation describing the non-stationary physical process of heat and mass transfer if it contains the unknown thermal conductivity coefficient. Such situations arising in physical problems motivated the appearance of the present work. In this monograph the author considers numerical solutions of the quasi-inversion problems, to which the solution of the original coefficient inverse problems are reduced. Underground fluid dynamics is taken as a field of practical use of coefficient inverse problems. The significance of these problems for this application domain consists in the possibility to determine the physical fields of parameters that characterize the filtration properties of porous media (oil strata). This provides the possibility of predicting

the conditions of oil-field development and the effects of the exploitation. The research carried out by the author showed that the quasi-inversion method can be applied also for solution of "interior coefficient inverse problems" by reducing them to the problem of continuation of a solution to a parabolic equation. This reduction is based on the results of the proofs of the uniqueness theorems for solutions of the corresponding coefficient inverse problems.