

Contents

Introduction	3
1 The formulas and constructive methods for solving inverse problems of source determination.	5
§1.1 The Meyer transformation in the inverse problem with axial symmetry.	5
§1.2 The structure approach to inverse problem solving. .	11
§1.3 Determining the index and the right side of the pseudodifferential equation.	26
§1.4 Symmetry in inverse problems of source determination. .	31
§1.5 Inversion formulas for the wave equation. Setting of the problem.	34
§1.6 Conjugated equations in control problems of nonstationary geophysical fields.	48
§1.7 Inverse problem of source determination as the problem of statistical evaluation of parameters of the mathematical model.	53
§1.8 Formulas in multidimensional inverse problems for evolutionary equations.	62
2 Correctness of certain inverse problems.	69
§2.1 The Cauchy problem for elliptic and ultrahyperbolic equations in the classes of finite smoothness functions and inverse problems.	69
§2.2 Inverse problems for multidimensional hyperbolic equations.	85
§2.3 Control problems and inverse problems.	116

§2.4 Inverse problems for nonlinear equations 121

§2.5 Inverse problems of transfer theory. 134

§2.6 Geometric problems. 141

3 Numerical solution of direct and inverse problems. 159

§3.1 Mathematical simulation on the basis of the seismic moment tensor theory. 159

§3.2 Determining the seismic moment tensor of the seismic centre. 183

§3.3 The integral transformations method in inverse problems of source determination. 195

§3.4 The problem of distance quality control of an airplane landing. 222

Bibliography 231