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INCORRECT INVERSE PROBLEM SOLUTION METHOD FOR PARAMETER IDENTIFICATION OF TRANSPORT PROCESSES MODELS

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ABSTRACT

A method for model parameter identification on the bases of minimization of the least square function has been proposed. An iterative regularization procedure and a numerical algorithm have been developed for incorrect (ill-posed) or essentially incorrect inverse problem solution. The method has been tested with one and two-parameter models, when the relations between objectives function and parameters are linear and non-linear. The "experimental" data for parameters identification are obtained from the model and a generator for random numbers. The effects of the initial approximations of the parameter values and the regularization parameter values have been investigated. A statistical approach has been proposed for the analysis of the model adequacy. It is demonstrated that in the cases of essential incorrectness, the least square function do not reach minima. A criterion for the incorrectness of the inverse problem was proposed.

KEYWORDS

model parameter identification, incorrect inverse problems, iterative method, regularization, model adequacy

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