Yu. M. Matsevity

INVERSE HEAT CONDUCTION PROBLEMS

Volume

II

APPLICATIONS

National Academy of Sciences of Ukraine

A. N. Podgorny Institute for Mechanical Engineering Problems

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Yu. M. Matsevity

INVERSE HEAT CONDUCTION PROBLEMS

In two volumes

Volume

2

APPLICATIONS

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The monograph deals with statements and methods for solving inverse heat conduction problems (IHCP). It also discusses issues in the well-posed statement of these problems and methods for regularizing the solution of ill-posed problems. Emphasis is placed on parametric identification of thermal processes based on automated fitting methods; spectral influence functions, and lumped capacity and optimal dynamic filtering techniques. The monograph demonstrates the ways of implementing these methods using digital, analog and hybrid computers for identification of boundary and initial conditions (boundary and retrospective IHCP); and thermophysical and geometric characteristics (inner and geometric IHCP) to solve combined IHCP and optimization problems. The monograph presents the results of solving IHCP for power industry and mechanical engineering applications, as well as for metallurgical and metalworking processes.

The monograph is intended for scientists and technologists working in the field of thermal physics and heat engineering. The book can have a practical value for post-graduates, and instructors and students of technical higher educational institutions.

125 Figures and 12 Tables. References: 830 titles.

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VOLUME 2 APPLICATIONS

Scientific edition

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