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5. Applications of the Space Marching Solution of the IHCP5.1. Identification of Boundary Source Functions; 5.2. Numerical Procedure; 5.3. IHCP with Phase Changes; 5.4. Description of the Problems; 5.5. Numerical Procedure; 5.6. Identification of the Initial Temperature Distribution; 5.7. Semi-infinite Body; 5.8. Finite Slab Symmetry; 5.9. Stabilized Problems; 5.10. Numerical Results; 5.11. Exercises; 5.12. References and Comments; 6. Applications of Stable Numerical Differentiation Procedures; 6.1. Numerical Identification of Forcing Terms; 6.2. Stabilized Problem; 6.3. Numerical Results 6.4. Identification of the Transmissivity Coefficient in the One-Dimensional Elliptic Equation6.5. Stability Analysis; 6.6. Numerical Method; 6.7. Numerical Results; 6.8. Identification of the Transmissivity Coefficient in the One-Dimensional Parabolic Equation; 6.9. Stability Analysis; 6.10. Numerical Method; 6.11. Numerical Results; 6.12. Exercises; 6.13. References and Comments; Appendix A. Mathematical Background; A.1. Lp Spaces; A.2. The Hilbert Space  $L_2()$ ; A.3. Approximation of Functions in  $L_2()$ ; A.4. Mollifiers; A.5. Fourier Transform; A.6. Discrete Functions A.7. References and CommentsAppendix B. References to the Literature on the IHCP; Index

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Sommario/riassunto

Uses a strong computational and truly interdisciplinary treatment to introduce applied inverse theory. The author created the Mollification Method as a means of dealing with ill-posed problems. Although the presentation focuses on problems with origins in mechanical engineering, many of the ideas and techniques can be easily applied to a broad range of situations.

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