

Initial-boundary value problems and the Navier-Stokes equations

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Abstrak

Researchers and graduate students in applied mathematics and engineering will find Initial-Boundary Value Problems and the Navier-Stokes Equations invaluable. The subjects addressed in the book, such as the well-posedness of initial-boundary value problems, are of frequent interest when PDEs are used in modeling or when they are solved numerically. The book explains the principles of these subjects. The reader will learn what well-posedness or ill-posedness means and how it can be demonstrated for concrete problems. There are many new results, in particular on the Navier-Stokes equations.

When the book was written, the main intent was to write a text on initial-boundary value problems that was accessible to a rather wide audience. Therefore, functional analytical prerequisites were kept to a minimum or were developed in the book. Boundary conditions are analyzed without first proving trace theorems, and similar simplifications have been used throughout. The direct approach to the subject still gives a valuable introduction to an important area of applied analysis.