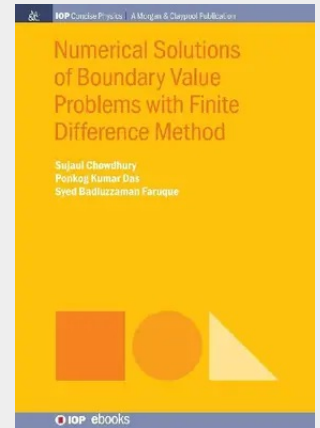


Numerical Solutions of Boundary Value Problems with Finite Difference Method

This book contains an extensive illustration of use of finite difference method in solving the boundary value problem numerically. A wide class of differential equations has been numerically solved in this book. Starting with differential equations of elementary functions like hyperbolic, sine and cosine, we have solved those of special functions like Hermite, Laguerre and Legendre. Those of Airy function, of stationary localised wavepacket, of the quantum mechanical problem of a particle in a 1D box, and the polar equation of motion under gravitational interaction have also been solved. Mathematica 6.0 has been used to solve the system of linear equations that we encountered and to plot the numerical data. Comparison with known analytic solutions showed nearly perfect agreement in every case. On reading this book, readers will become adept in using the method.

Containing an extensive illustration of the use of finite difference method in solving boundary value problems numerically, a wide class of differential equations have been numerically solved in this book.



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