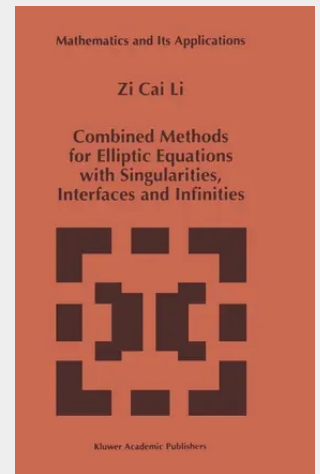


Combined Methods for Elliptic Equations with Singularities, Interfaces and Infinities

In this book the author sets out to answer two important questions: 1. Which numerical methods may be combined together? 2. How can different numerical methods be matched together? In doing so the author presents a number of useful combinations, for instance, the combination of various FEMs, the combinations of FEM-FDM, REM-FEM, RGM-FDM, etc. The combined methods have many advantages over single methods: high accuracy of solutions, less CPU time, less computer storage, easy coupling with singularities as well as the complicated boundary conditions. Since coupling techniques are essential to combinations, various matching strategies among different methods are carefully discussed. The author provides the matching rules so that optimal convergence, even superconvergence, and optimal stability can be achieved, and also warns of the matching pitfalls to avoid.

The book is intended for both mathematicians and engineers and may be used as text for advanced students.

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