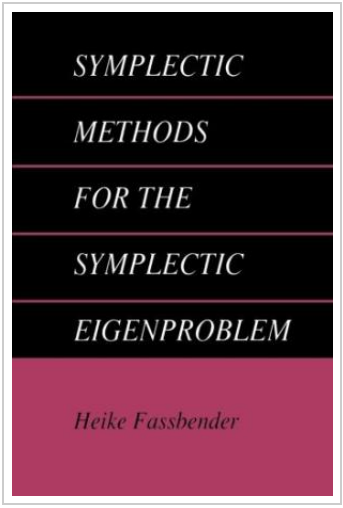

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Symplectic Methods for the Symplectic Eigen-problem

By Heike Fassbender

Springer-Verlag New York Inc. Paperback. Book Condition: New. Paperback. 269 pages. Dimensions: 9.2in. x 6.1in. x 0.7in.The solution of eigenvalue problems is an integral part of many scientific computations. For example, the numerical solution of problems in structural dynamics, electrical networks, macro-economics, quantum chemistry, and c- trol theory often requires solving eigenvalue problems. The coefficient matrix of the eigenvalue problem may be small to medium sized and dense, or large and sparse (containing many zeroelements). In the past tremendous advances have been achieved in the solution methods for symmetric eigenvalue pr- lems. The state of the art for nonsymmetric problems is not so advanced; nonsymmetric eigenvalue problems can be hopelessly difficult to solve in some situations due, for example, to poor conditioning. Good numerical algorithms for nonsymmetric eigenvalue problems also tend to be far more complex than their symmetric counterparts. This book deals with methods for solving a special nonsymmetric eig- value problem; the symplectic eigenvalue problem. The symplectic eigenvalue problem is helpful, e. g. , in analyzing a number of different questions that arise in linear control theory for discrete-time systems. Certain quadratic eigenvalue problems arising, e. g. , in finite element discretization in structural analysis, in acoustic simulation...

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