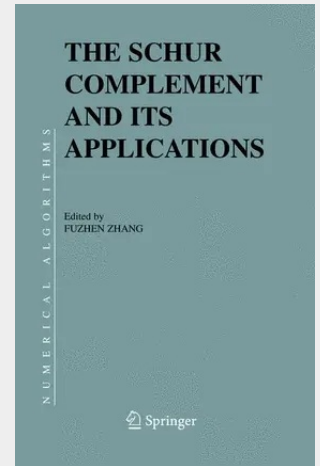


The Schur Complement and Its Applications

What's in a name? To paraphrase Shakespeare's Juliet, that which - ilie Haynsworth called the Schur complement, by any other name would be just as beautiful. Nevertheless, her 1968 naming decision in honor of Issai Schur (1875-1941) has gained lasting acceptance by the mathematical community. The Schur complement plays an important role in matrix analysis, statistics, numerical analysis, and many other areas of mathematics and its applications. Our goal is to expose the Schur complement as a rich and basic tool in mathematical research and applications and to discuss many significant results that illustrate its power and fertility. Although our book was originally conceived as a research reference, it will also be useful for graduate and upper division undergraduate courses in mathematics, applied mathematics, and statistics. The contributing authors have developed an exposition that makes the material accessible to readers with a sound foundation in linear algebra. The eight chapters of the book (Chapters 0-7) cover themes and variations on the Schur complement, including its historical development, basic properties, eigenvalue and singular value inequalities, matrix inequalities in both finite and infinite dimensional settings, closure properties, and applications in statistics, probability, and numerical analysis. The chapters need not be read in the order presented, and the reader should feel at leisure to browse freely through topics of interest.

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