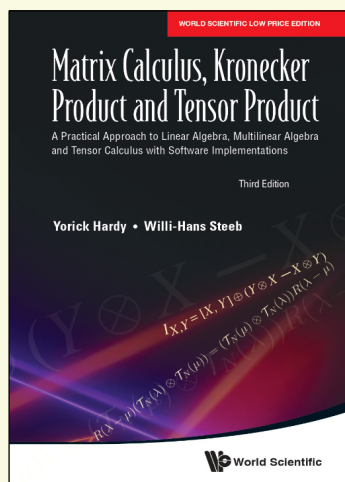


Matrix Calculus, Kronecker Product and Tensor Product

A Practical Approach to Linear Algebra, Multilinear Algebra and Tensor Calculus with Software Implementations

3rd Edition



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ABOUT THE BOOK

Our self-contained volume provides an accessible introduction to linear and multilinear algebra as well as tensor calculus. Besides the standard techniques for linear algebra, multilinear algebra and tensor calculus, many advanced topics are included where emphasis is placed on the Kronecker product and tensor product. The Kronecker product has widespread applications in signal processing, discrete wavelets, statistical physics, Hopf algebra, Yang–Baxter relations, computer graphics, fractals, quantum mechanics, quantum computing, entanglement, teleportation and partial trace. All these fields are covered comprehensively.

The volume contains many detailed worked-out examples. Each chapter includes useful exercises and supplementary problems. In the last chapter, software implementations are provided for different concepts. The volume is well suited for pure and applied mathematicians as well as theoretical physicists and engineers.

New topics added to the third edition are: mutually unbiased bases, Cayley transform, spectral theorem, nonnormal matrices, Gâteaux derivatives and matrices, trace and partial trace, spin coherent states, Clebsch–Gordan series, entanglement, hyperdeterminant, tensor eigenvalue problem, Carleman matrix and Bell matrix, tensor fields and Ricci tensors, and software implementations.

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