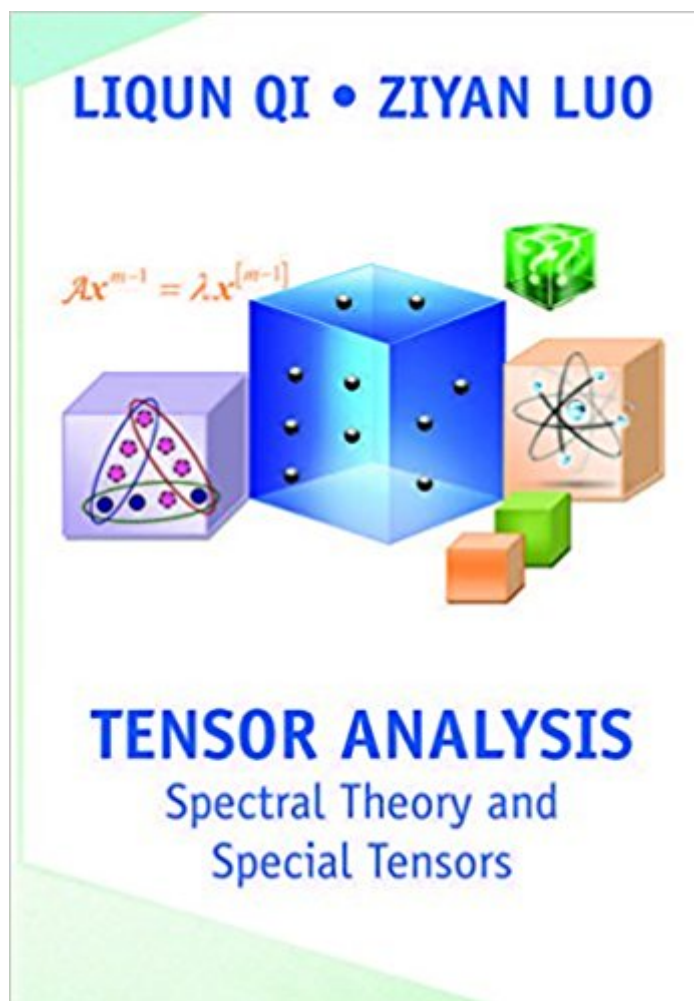


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# Tensor Analysis: Spectral Theory And Special Tensors



## Synopsis

Tensors, or hypermatrices, are multi-arrays with more than two indices. In the last decade or so, many concepts and results in matrix theory - some of which are nontrivial - have been extended to tensors and have a wide range of applications (for example, spectral hypergraph theory, higher order Markov chains, polynomial optimization, magnetic resonance imaging, automatic control, and quantum entanglement problems). The authors provide a comprehensive discussion of this new theory of tensors. Tensor Analysis is unique in that it is the first book to cover these three subject areas: the spectral theory of tensors; the theory of special tensors, including nonnegative tensors, positive semidefinite tensors, completely positive tensors, and copositive tensors; and the spectral hypergraph theory via tensors. Audience: The intended audience is researchers and graduate students. Contents: List of Figures; List of Algorithms; Chapter 1: Introduction; Chapter 2: Eigenvalues of Tensors; Chapter 3: Nonnegative Tensors; Chapter 4: Spectral Hypergraph Theory via Tensors; Chapter 5: Positive Semidefinite Tensors; Chapter 6: Completely Positive Tensors and Copositive Tensors; Bibliography; Index.

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Liyun Qi is Chair Professor of Applied Mathematics in the Department of Applied Mathematics at The Hong Kong Polytechnic University. Listed as one of the 345 most highly cited mathematicians from 1981 to 2007 by ISI Highly Cited Research, he has published more than 290 papers - including more than 110 papers on tensors - in international journals. Ziyang Luo is Associate Professor of System Science at the State Key Laboratory of Rail Traffic Control and Safety at Beijing Jiaotong University.

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