SPECIAL ISSUE ON TENSOR DECOMPOSITIONS AND APPLICATIONS

This issue of *SIAM Journal on Matrix Analysis and Applications* was motivated by the Workshop on Tensor Decompositions and Applications, held in Luminy, France from August 29 to September 2, 2005. The issue was announced through both the SIMAX and the workshop web sites.

Though decompositions of higher-order tensors have been around for many years, the door is now opening on greater mathematical understanding and new applications. Tensor decompositions have been applied by researchers in psychometrics and chemometrics since the seventies. More recently, tensors have found their way to signal processing via the use of high-order statistics, joint matrix techniques and applications in telecommunications. Other applications include complexity theory, (blind) system identification, biomedical engineering, numerical analysis, and data mining, among others.

This volume contains 15 papers that together form a nice cross-section of current research on tensor decompositions. The papers present new algorithms, basic algebraic results including the introduction of new decompositions, and applications in signal processing, scientific computing and large-scale problems.

Many thanks are due to all the authors for their valuable contributions. We would also like to thank Henk van der Vorst, Mitch Chernoff and the SIAM staff for their support.

Since the initial submission of the papers, two of the authors have passed away. Richard Harshman and Gene Golub were both authorities in their field.

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