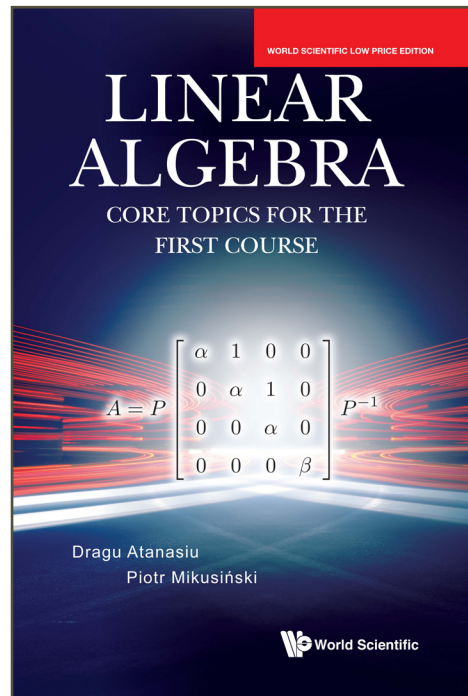# LINEAR ALGEBRA
Core Topics for the First Course

By
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ABOUT THE BOOK

The book is an introduction to linear algebra intended as a textbook for the first course in linear algebra. In the first six chapters we present the core topics: matrices, the vector space Rn, orthogonality in Rn, determinants, eigenvalues and eigenvectors, and linear transformations. The book gives students an opportunity to better understand linear algebra in the next three chapters: Jordan forms by examples, singular value decomposition, and quadratic forms and positive definite matrices.

In the first nine chapters everything is formulated in terms of Rn. This makes the ideas of linear algebra easier to understand. The general vector spaces are introduced in Chapter 10. The last chapter presents problems solved with a computer algebra system. At the end of the book we have results or solutions for odd numbered exercises.

READERSHIP

Undergraduate students taking a first course in linear algebra.

CONTENTS

- Matrices
- The Vector Space Rn
- Orthogonality in Rn
- Determinants
- Eigenvalues and Eigenvectors
- Linear Transformations
- Jordan Forms by Examples
- Singular Value Decomposition
- Quadratic Forms and Positive Definite Matrices
- Vector Spaces
- Solutions with CAS
- Answers to Selected Exercises

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