

## Tensor Algebra and Tensor Analysis for Engineers: With Applications to Continuum Mechanics (Mathematical Engineering)

By Mikhail Itskov



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There is a large gap between the engineering course in tensor algebra on the one hand and the treatment of linear transformations within classical linear algebra on the other hand. The aim of this modern textbook is to bridge this gap by means of the consequent and fundamental exposition. The book primarily addresses engineering students with some initial knowledge of matrix algebra. Thereby the mathematical formalism is applied as far as it is absolutely necessary. Numerous exercises are provided in the book and are accompanied by solutions, enabling self-study. The last chapters of the book deal with modern developments in the theory of isotropic and anisotropic tensor functions and their applications to continuum mechanics and are therefore of high interest for PhD-students and scientists working in this area.

This third edition is completed by a number of additional figures, examples and exercises. The text and formulae have been revised and improved where necessary.



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#### About the Author

Prof. Itskov studied Automobile Engineering at the Moscow State Automobile and Road Technical University, Russia. In 1990 he received his doctoral degree in mechanics, and in 2002 he obtained his habilitation degree in mechanics from the University of Bayreuth, Germany. Since 2004 he has been full professor for continuum mechanics at the RWTH Aachen University, Germany. His research interests comprise tensor analysis, non-linear continuum mechanics, in particular the application to ansiotropic materials, as well as the mechanics of elastomers and soft tissues in a broad sense.

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