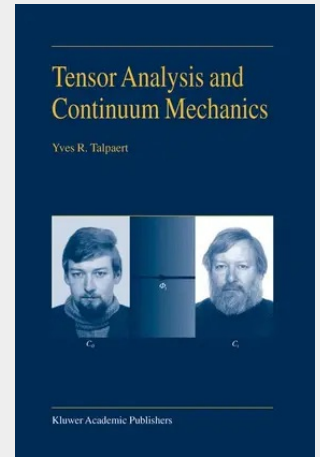


Tensor Analysis and Continuum Mechanics

This book is designed for students in engineering, physics and mathematics. The material can be taught from the beginning of the third academic year. It could also be used for self study, given its pedagogical structure and the numerous solved problems which prepare for modern physics and technology. One of the original aspects of this work is the development together of the basic theory of tensors and the foundations of continuum mechanics. Why two books in one? Firstly, Tensor Analysis provides a thorough introduction of intrinsic mathematical entities, called tensors, which is essential for continuum mechanics. This way of proceeding greatly unifies the various subjects. Only some basic knowledge of linear algebra is necessary to start out on the topic of tensors. The essence of the mathematical foundations is introduced in a practical way. Tensor developments are often too abstract, since they are either aimed at algebraists only, or too quickly applied to physicists and engineers. Here a good balance has been found which allows these extremes to be brought closer together. Though the exposition of tensor theory forms a subject in itself, it is viewed not only as an autonomous mathematical discipline, but as a preparation for theories of physics and engineering. More specifically, because this part of the work deals with tensors in general coordinates and not solely in Cartesian coordinates, it will greatly help with many different disciplines such as differential geometry, analytical mechanics, continuum mechanics, special relativity, general relativity, cosmology, electromagnetism, quantum mechanics, etc.

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