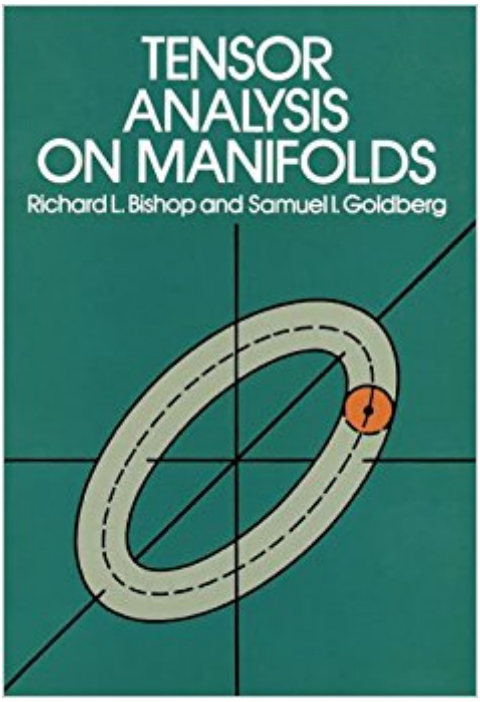
Tensor Analysis On Manifolds (Dover Books On Mathematics)



Synopsis

"This is a first-rate book and deserves to be widely read." â ” American Mathematical MonthlyDespite its success as a mathematical tool in the general theory of relativity and its adaptability to a wide range of mathematical and physical problems, tensor analysis has always had a rather restricted level of use, with an emphasis on notation and the manipulation of indices. This book is an attempt to broaden this point of view at the stage where the student first encounters the subject. The authors have treated tensor analysis as a continuation of advanced calculus, striking just the right balance between the formal and abstract approaches to the subject.The material proceeds from the general to the special. An introductory chapter establishes notation and explains various topics in set theory and topology. Chapters 1 and 2 develop tensor analysis in its function-theoretical and algebraic aspects, respectively. The next two chapters take up vector analysis on manifolds and integration theory. In the last two chapters (5 and 6) several important special structures are studied, those in Chapter 6 illustrating how the previous material can be adapted to clarify the ideas of classical mechanics. The text as a whole offers numerous examples and problems.A student with a background of advanced calculus and elementary differential equation could readily undertake the study of this book. The more mature the reader is in terms of other mathematical knowledge and experience, the more he will learn from this presentation.

Book Information

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Customer Reviews

Great reference for answers on introductory differential geometry. Clear, concise, theory with good

examples.

Concise and clear, as a math text should be.I did easily manage to stress the hierarchies between the various mathematical structures, which was my main concern

Nice book, looks like new and arrived on time. Great quality.

I bought this as a primer for reading General Relativity and did not give five stars for a few reasons:no symbol index, the intro on Topology is almost worthless and I would add a few more required subjects before bothering to tackle this besides the ones suggested by the authors including introductory Linear Algebra and Topology. My other complaint is that there are only 21 small diagrams which is kind of disappointing considering the highly geometrical nature of the subject.

This book leaves too many gaps which need to be filled by readers. For some parts, if the author was not intending to give proof, that is OK, could just give a clear conclusion, instead of offering some half hearted, confusing narration. Too many parts of this book look like English essay, not a rigorous math text book.

I have just started to read it, generally while waiting for doctors. Chapter "0" provedan excellent review of that which I had learned in ’62 and chapter 1 is proving similar.My use of the book at 76 years is to keep the mind alive and it does provide thenecessary challenge!

It’s very good.

I have some reservations:1) no notation/ symbols page2) uses the Klein Map but doesn’t give the name3) no clear affine and projective manifold classificationBut in contrast it has good handling of diffeomorphisms and integrationson manifolds.I bought it to the Weeks space manifold, M003[3,-1], and the polyhedron forms that Weeks uses. It isn’t reallyof use in that more modern area of manifold theory either.The Thurston space manifold, M003[2,-3], isn’t covered.The book is a good introductory text that I wish I would have had 40 years ago!

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