An Introduction to Tensors and Group Theory for Physicists

By Nadir Jeevanjee

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee

The second edition of this highly praised textbook provides an introduction to tensors, group theory, and their applications in classical and quantum physics. Both intuitive and rigorous, it aims to demystify tensors by giving the slightly more abstract but conceptually much clearer definition found in the math literature, and then connects this formulation to the component formalism of physics calculations. New pedagogical features, such as new illustrations, tables, and boxed sections, as well as additional "invitation" sections that provide accessible introductions to new material, offer increased visual engagement, clarity, and motivation for students.

Part I begins with linear algebraic foundations, follows with the modern component-free definition of tensors, and concludes with applications to physics through the use of tensor products. Part II introduces group theory, including abstract groups and Lie groups and their associated Lie algebras, then intertwines this material with that of Part I by introducing representation theory. Examples and exercises are provided in each chapter for good practice in applying the presented material and techniques.

Prerequisites for this text include the standard lower-division mathematics and physics courses, though extensive references are provided for the motivated student who has not yet had these. Advanced undergraduate and beginning graduate students in physics and applied mathematics will find this textbook to be a clear, concise, and engaging introduction to tensors and groups.

Reviews of the First Edition

"[P]hysicist Nadir Jeevanjee has produced a masterly book that will help other physicists understand those subjects [tensors and groups] as mathematicians understand them… From the first pages, Jeevanjee shows amazing skill in finding fresh, compelling words to bring forward the insight that animates the modern mathematical view…[W]ith compelling force and clarity, he provides

many carefully worked-out examples and well-chosen specific problems… Jeevanjee's clear and forceful writing presents familiar cases with a freshness that will draw in and reassure even a fearful student. [This] is a masterpiece of exposition and explanation that would win credit for even a seasoned author."

?Physics Today

"Jeevanjee's [text] is a valuable piece of work on several counts, including its express pedagogical service rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning. The book is very easy to read, very user-friendly, full of examples...and exercises, and will do the job the author wants it to do with style."

?MAA Reviews

An Introduction to Tensors and Group Theory for Physicists

By Nadir Jeevanjee

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee

The second edition of this highly praised textbook provides an introduction to tensors, group theory, and their applications in classical and quantum physics. Both intuitive and rigorous, it aims to demystify tensors by giving the slightly more abstract but conceptually much clearer definition found in the math literature, and then connects this formulation to the component formalism of physics calculations. New pedagogical features, such as new illustrations, tables, and boxed sections, as well as additional "invitation" sections that provide accessible introductions to new material, offer increased visual engagement, clarity, and motivation for students.

Part I begins with linear algebraic foundations, follows with the modern component-free definition of tensors, and concludes with applications to physics through the use of tensor products. Part II introduces group theory, including abstract groups and Lie groups and their associated Lie algebras, then intertwines this material with that of Part I by introducing representation theory. Examples and exercises are provided in each chapter for good practice in applying the presented material and techniques.

Prerequisites for this text include the standard lower-division mathematics and physics courses, though extensive references are provided for the motivated student who has not yet had these. Advanced undergraduate and beginning graduate students in physics and applied mathematics will find this textbook to be a clear, concise, and engaging introduction to tensors and groups.

Reviews of the First Edition

"[P]hysicist Nadir Jeevanjee has produced a masterly book that will help other physicists understand those subjects [tensors and groups] as mathematicians understand them… From the first pages, Jeevanjee shows amazing skill in finding fresh, compelling words to bring forward the insight that animates the modern mathematical view…[W]ith compelling force and clarity, he provides many carefully worked-out examples and well-chosen specific problems… Jeevanjee's clear and forceful writing presents familiar cases with a freshness that will draw in and reassure even a fearful student. [This] is a masterpiece of exposition and explanation that would win credit for even a seasoned author."

?Physics Today

"Jeevanjee's [text] is a valuable piece of work on several counts, including its express pedagogical service rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning. The book is very easy to read, very user-friendly, full of examples...and exercises, and will do the job the author wants it to do with style."

?MAA Reviews

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee Bibliography

- Sales Rank: #106742 in Books
- Published on: 2015-03-12
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x .75" w x 6.14" l, 1.39 pounds
- Binding: Hardcover
- 305 pages

⬇ **Download** An Introduction to Tensors and Group Theory for Ph ...pdf

📄 **Read Online** An Introduction to Tensors and Group Theory for ...pdf

Editorial Review

Review
"Jeevanjee 's An Introduction to Tensors and Group Theory for Physicists is a valuable piece of work on several counts, including its express pedagogical service rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning: it 's the same meat and potatoes, really, but the flavoring is all different.Oh yes, one more thing. The book is very easy to read, very user-friendly, full of examples...and exercises, and will do the job the author wants it to do with style. I am indeed going to use it myself, hopefully to great advantage, in my upcoming dealings with my working-group." MAA Reviews

With An Introduction to Tensors and Group Theory for Physicists, physicist Nadir Jeevanjee has produced a masterly book that will help other physicists understand those subjects [tensors and groups] as mathematicians understand them From the first pages, Jeevanjee shows amazing skill in finding fresh, compelling words to bring forward the insight that animates the modern mathematical view. In contrast to the usual description of a baffling beast bristling with indices, Jeevanjee describes how, as he puts it, tensors eat vectors and spit out numbers. He combines vivid use of language with coherent expositions of the detailed equations and expressions. Above all, with compelling force and clarity, he provides many carefully worked-out examples and well-chosen specific problems Jeevanjee 's clear and forceful writing presents familiar cases with a freshness that will draw in and reassure even a fearful student. He does not stint the technical details, which are nicely embedded in the text so that they connect smoothly with the larger conceptual exposition An Introduction to Tensors and Group Theory for Physicists, written during Jeevanjee 's graduate studies at the University of California, Berkeley, is a masterpiece of exposition and explanation that would win credit for even a seasoned author. One can only hope that, after this prodigious first book, he will write many more. Physics Today "Jeevanjee 's An Introduction to Tensors and Group Theory for Physicists is a valuable piece of work on several counts, including its express pedagogical service rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning: it 's the same meat and potatoes, really, but the flavoring is all different. Oh yes, one more thing. The book is very easy to read, very user-friendly, full of examples...and exercises, and will do the job the

From the reviews: With An Introduction to Tensors and Group Theory for Physicists, physicist Nadir Jeevanjee has produced a masterly book that will help other physicists understand those subjects [tensors and groups] as mathematicians understand them From the first pages, Jeevanjee shows amazing skill in finding fresh, compelling words to bring forward the insight that animates the modern mathematical view. In contrast to the usual description of a baffling beast bristling with indices, Jeevanjee describes how, as he puts it, tensors eat vectors and spit out numbers. He combines vivid use of language with coherent expositions of the detailed equations and expressions. Above all, with compelling force and clarity, he provides many carefully worked-out examples and well-chosen specific problems Jeevanjee s clear and forceful writing presents familiar cases with a freshness that will draw in and reassure even a fearful student. He does not stint the technical details, which are nicely embedded in the text so that they connect smoothly with the larger conceptual exposition An Introduction to Tensors and Group Theory for Physicists, written during Jeevanjee s graduate studies at the University of California, Berkeley, is a masterpiece of exposition and explanation that would win credit for even a seasoned author. One can only hope that, after this prodigious first book, he will write many more. Physics Today "Jeevanjee s An Introduction to Tensors and Group Theory for Physicists is a valuable piece of work on several counts, including its express pedagogical service

rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning: it s the same meat and potatoes, really, but the flavoring is all different. Oh yes, one more thing. The book is very easy to read, very user-friendly, full of examples...and exercises, and will d

From the reviews:

With "An Introduction to Tensors and Group Theory for Physicists," physicist Nadir Jeevanjee has produced a masterly book that will help other physicists understand those subjects [tensors and groups] as mathematicians understand them From the first pages, Jeevanjee shows amazing skill in finding fresh, compelling words to bring forward the insight that animates the modern mathematical view. In contrast to the usual description of a baffling beast bristling with indices, Jeevanjee describes how, as he puts it, tensors eat vectors and spit out numbers. He combines vivid use of language with coherent expositions of the detailed equations and expressions. Above all, with compelling force and clarity, he provides many carefully worked-out examples and well-chosen specific problems Jeevanjee s clear and forceful writing presents familiar cases with a freshness that will draw in and reassure even a fearful student. He does not stint the technical details, which are nicely embedded in the text so that they connect smoothly with the larger conceptual exposition "An Introduction to Tensors and Group Theory for Physicists," written during Jeevanjee s graduate studies at the University of California, Berkeley, is a masterpiece of exposition and explanation that would win credit for even a seasoned author. One can only hope that, after this prodigious first book, he will write many more.

Physics Today

"Jeevanjee s "An Introduction to Tensors and Group Theory for Physicists" is a valuable piece of work on several counts, including its express pedagogical service rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning: it s the same meat and potatoes, really, but the flavoring is all different.

Oh yes, one more thing. The book is very easy to read, very user-friendly, full of examples...and exercises, and will do the job the author wants it to do with style. I am indeed going to use it myself, hopefully to great advantage, in my upcoming dealings with my working-group."

MAA Reviews

The book is divided into two distinct parts, the first one (Chapters 1-3) dealing with linear algebra and tensors, the second focusing on group theory in physics (Chapter 4-6). provide a solid background for students, helping them to understand the more advanced literature on the subject without formal difficulties. this book not only fills a considerable pedagogical gap in the physical and mathematical literature, but also shows to what extent the material arises naturally within any consistent model of natural phenomena. (Rutwig Campoamor-Stursberg, Mathematical Reviews, Issue 2012 i)

The aim of the monograph is to fill a definite gap in literature by connecting the component formalism intrinsic to physical computations to the abstract but more conceptual formulations of mathematical literature and to present interconnections between tensor analysis and group theory, to demonstrate their physical applications. It is destined for students of advanced-undergraduate level. Every chapter in endowed by exercises and problems. (Boris V. Loginov, Zentralblatt MATH, Vol. 1229, 2012)"

From the Back Cover

The second edition of this highly praised textbook provides an introduction to tensors, group theory, and their applications in classical and quantum physics. Both intuitive and rigorous, it aims to demystify tensors by giving the slightly more abstract but conceptually much clearer definition found in the math literature, and then connects this formulation to the component formalism of physics calculations. New pedagogical features, such as new illustrations, tables, and boxed sections, as well as additional "invitation" sections that provide accessible introductions to new material, offer increased visual engagement, clarity, and motivation for students.

Part I begins with linear algebraic foundations, follows with the modern component-free definition of tensors, and concludes with applications to physics through the use of tensor products. Part II introduces group theory, including abstract groups and Lie groups and their associated Lie algebras, then intertwines this material with that of Part I by introducing representation theory. Examples and exercises are provided in each chapter for good practice in applying the presented material and techniques.

Prerequisites for this text include the standard lower-division mathematics and physics courses, though extensive references are provided for the motivated student who has not yet had these. Advanced undergraduate and beginning graduate students in physics and applied mathematics will find this textbook to be a clear, concise, and engaging introduction to tensors and groups.

Reviews of the First Edition

"[P]hysicist Nadir Jeevanjee has produced a masterly book that will help other physicists understand those subjects [tensors and groups] as mathematicians understand them… From the first pages, Jeevanjee shows amazing skill in finding fresh, compelling words to bring forward the insight that animates the modern mathematical view…[W]ith compelling force and clarity, he provides many carefully worked-out examples and well-chosen specific problems… Jeevanjee's clear and forceful writing presents familiar cases with a freshness that will draw in and reassure even a fearful student. [This] is a masterpiece of exposition and explanation that would win credit for even a seasoned author."

?Physics Today

"Jeevanjee's [text] is a valuable piece of work on several counts, including its express pedagogical service rendered to fledgling physicists and the fact that it does indeed give pure mathematicians a way to come to terms with what physicists are saying with the same words we use, but with an ostensibly different meaning. The book is very easy to read, very user-friendly, full of examples...and exercises, and will do the job the author wants it to do with style."

?MAA Reviews

About the Author

Nadir Jeevanjee is a graduate student research assistant at the Lawrence Berkeley National Laboratory in Berkeley, CA.

Users Review

From reader reviews:

Angie Dean:

What do you consider book? It is just for students since they're still students or this for all people in the world, what best subject for that? Just simply you can be answered for that question above. Every person has diverse personality and hobby for every other. Don't to be pushed someone or something that they don't need do that. You must know how great and also important the book An Introduction to Tensors and Group Theory for Physicists. All type of book are you able to see on many solutions. You can look for the internet resources or other social media.

Michele Anderson:

As people who live in the modest era should be revise about what going on or details even knowledge to make them keep up with the era that is always change and progress. Some of you maybe can update themselves by reading through books. It is a good choice for you but the problems coming to anyone is you don't know which one you should start with. This An Introduction to Tensors and Group Theory for Physicists is our recommendation to cause you to keep up with the world. Why, because book serves what you want and want in this era.

Mildred Yen:

Typically the book An Introduction to Tensors and Group Theory for Physicists will bring that you the new experience of reading some sort of book. The author style to spell out the idea is very unique. In the event you try to find new book to learn, this book very acceptable to you. The book An Introduction to Tensors and Group Theory for Physicists is much recommended to you to see. You can also get the e-book from official web site, so you can quickly to read the book.

Philip Nguyen:

Reading a book to be new life style in this yr; every people loves to learn a book. When you study a book you can get a lot of benefit. When you read publications, you can improve your knowledge, simply because book has a lot of information in it. The information that you will get depend on what forms of book that you have read. If you need to get information about your research, you can read education books, but if you want to entertain yourself read a fiction books, these us novel, comics, and soon. The An Introduction to Tensors and Group Theory for Physicists provide you with new experience in reading through a book.

Download and Read Online An Introduction to Tensors and Group

Theory for Physicists By Nadir Jeevanjee #QEIYGMR1VUA

Read An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee for online ebook

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee books to read online.

Online An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee ebook PDF download

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee Doc

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee Mobipocket

An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee EPub

QEIYGMR1VUA: An Introduction to Tensors and Group Theory for Physicists By Nadir Jeevanjee