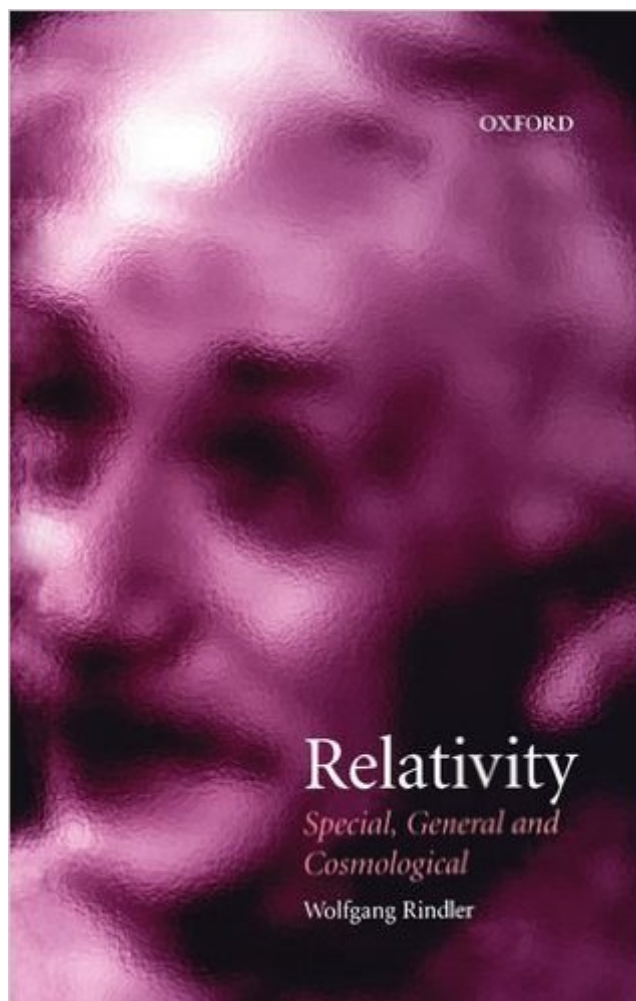


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Relativity: Special, General, And Cosmological



Synopsis

This text is a considerable amplification and modernization of the authors' earlier *Essential Relativity*. It brings relativity alive conceptually and emphasizes the foundations and the logical subtleties rather than the mathematics or the detailed experiments. It includes 300 exercises and promotes a visceral understanding and the confidence to tackle any fundamental relativistic problem. Following a critical overview of the whole field, special-relativistic kinematics is presented three dimensionally before the mathematical level gradually rises. Four vectors precede mechanics, four tensors precede Maxwell theory, and three chapters on cosmology end the text. This book brings the challenge and excitement of modern relativity and cosmology at a rigorous mathematical level within the reach of advanced undergraduates, while containing enough new material to interest lecturers and researchers.

Book Information

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Customer Reviews

This book is an update of the author's previous work "*Essential Relativity*," although the former book remains available through another publisher. "*Essential Relativity*" contains interesting (to me) material that had to be omitted from the new volume. The new volume contains necessary updates. The author is a world class scholar, and he gives a very comprehensive introduction to relativity, both special and general. Consequently, every serious student will be forced to purchase this book and study it thoroughly and quite carefully. As churlish as it may sound, I expect more from a world class scholar, teamed with one of the top technical publishers in the world. Rindler really begins the

technical discussion in section 2.7, which is a modest edit of a section from his previous book "Introduction to Special Relativity." In it, he considers a free particle whose trajectory is parameterized by its own particular clock, μ . He then considers the coordinates of two separate inertial reference frames. By differentiating by μ , he is able to show that the coordinates of inertial systems have to be linearly related. A page or two later, he has derived the whole Lorentz transformation in quite a lot of detail (not perfect detail). On finding the "truth," we then see that different observers see time sources quite differently. This is not obviously consistent with the original differentiation. For beginning classes, at least, this is at least an unnecessary source of potential confusion. Compare and contrast this ponderous progression with the smooth and economical set up for the Lorentz Transformation that is to be found in the first chapter of Landau and Lifschitz's "Classical Theory of Fields." It seems, at first, that Landau Lifschitz is at least infinitely better---maybe more.

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