



Gravitation and Cosmology: Principles and Applications of the General Theory of Relativity

Steven Weinberg

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DESCRIPTION

A leading physicist delves into relativity and experimental applications

Gravitation and Cosmology: Principles and Applications of the General Theory of Relativity offers a Nobel laureate's perspectives on the wealth of data technological developments have brought to expand upon Einstein's theory. Unique in basing relativity on the Principle of Equivalence of Gravitation and Inertia over Riemannian geometry, this book explores relativity experiments and observational cosmology to provide a sound foundation upon which analyses can be made. Covering special and general relativity, tensor analysis, gravitation, curvature, and more, this book provides an engaging, insightful introduction to the forces that shape the universe.

ABOUT THE AUTHOR

Steven Weinberg ForMemRS is an American theoretical physicist and Nobel laureate in Physics for his contributions with Abdus Salam and Sheldon Glashow to the unification of the weak force and electromagnetic interaction between elementary particles.

Gravitation and Cosmology: Principles and Applications of the General Theory of Relativity. Steven Weinberg. The beauty of general relativity (GR) lies in the connection it provides between geometry and physics. Weinberg's algebraic approach completely obscures this connection. Instead Weinberg teaches how to crank through complex calculations without any insight or geometric intuition. Having been published in 1972, the book lacks modern examples in cosmology and quantum gravity. It also lacks a proper introduction to differential geometry and makes no mention of topology or other mathematical ideas prevalent in current GR research. In the 35 years since its publication, it has been surpassed by many much better books.

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1. Gravity gauge theories and geometric algebra. Chris Doran. Language: english. File: PDF, 1.26 MB.
2. Introduction To General Relativity And Cosmology (Essential Textbooks in Physics). Christian G BÄ¶hmer. 5.0 out of 5 stars 8.Â The author takes a novel non-geometric approach to the General Theory of Relativity (GR). He shows how if we can discover the inner properties of a surface, we can then bypass the need for Riemannian geometry " by simply studying its metric. Said another way, the curvature of a geometric structure such as the earth, can be determined from its local inner properties. That is to say, through a sufficiently small region of space, whereby a local Euclidean coordinate system can be established, and the distance between any two points, satisfying the Pythagorean theorem can be computed.