



The Geometry of Physics

By Frankel, Theodore

Condition: New. Publisher/Verlag: Cambridge University Press | An Introduction | Provides a working knowledge of tools that are of great value in geometry and physics and in engineering. | This book provides a working knowledge of those parts of exterior differential forms, differential geometry, algebraic and differential topology, Lie groups, vector bundles and Chern forms that are essential for a deeper understanding of both classical and modern physics and engineering. Included are discussions of analytical and fluid dynamics, electromagnetism (in flat and curved space), thermodynamics, the Dirac operator and spinors, and gauge fields, including Yang Mills, the Aharonov Bohm effect, Berry phase and instanton winding numbers, quarks and quark model for mesons. Before discussing abstract notions of differential geometry, geometric intuition is developed through a rather extensive introduction to the study of surfaces in ordinary space. The book is ideal for graduate and advanced undergraduate students of physics, engineering or mathematics as a course text or for self study. This third edition includes an overview of Cartan's exterior differential forms, which previews many of the geometric concepts developed in the text. Theodore Frankel explains those parts of exterior differential forms, differential geometry, algebraic and differential topology, Lie groups, vector bundles and...



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