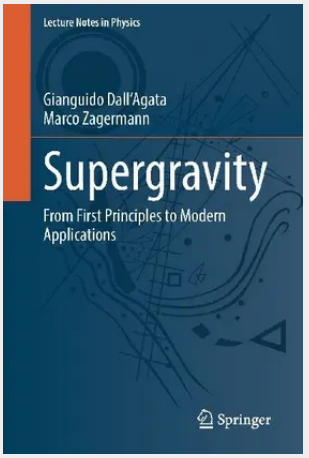
Dall'Agata / Zagermann

Supergravity

From First Principles to Modern Applications



This book is about supergravity, which combines the principles of general relativity and local gauge invariance with the idea of supersymmetries between bosonic and fermionic degrees of freedom. The authors give a thorough and pedagogical introduction to the subject suitable for beginning graduate or advanced undergraduate students in theoretical high energy physics or mathematical physics. Interested researchers working in these or related areas are also addressed. The level of the presentation assumes a working knowledge of general relativity and basic notions of differential geometry as well as some familiarity with global supersymmetry in relativistic field theories. Bypassing curved superspace and other more technical approaches, the book starts from the simple idea of supersymmetry as a local gauge symmetry and derives the mathematical and physical properties of supergravity in a direct and “minimalistic” way, using a combination of explicit computations and geometrical reasoning. Key topics include spinors in curved spacetime, pure supergravity with and without a cosmological constant, matter couplings in global and local supersymmetry, phenomenological and cosmological implications, extended supergravity, gauged supergravity and supergravity in higher spacetime dimensions.

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