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| Autore | Aitchison Ian Johnston Rhind <1936-> |
| Titolo | Supersymmetry in particle physics : an elementary introduction / / Ian J. R. Aitchison [[electronic resource]] |
| Pubbl/distr/stampa | Cambridge : , : Cambridge University Press, , 2007 |
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| Descrizione fisica | 1 online resource (xiii, 222 pages) : digital, PDF file(s) |
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| Soggetti | Supersymmetry |
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| Nota di contenuto | ; 1. Introduction and motivation -- ; 2. Spinors: Weyl, Dirac and Majorana -- ; 3. Introduction to supersymmetry and the MSSM -- ; 4. supersymmetry algebra and supermultiplets -- ; 5. Wess-Zumino model -- ; 6. Superfields -- ; 7. Vector (or gauge) supermultiplets -- ; 8. MSSM -- ; 9. SUSY breaking -- ; 10. Higgs sector and electroweak symmetry breaking in the MSSM -- ; 11. Sparticle masses in the MSSM -- ; 12. Some simple tree-level calculations in the MSSM. |
| Sommario/riassunto | Supersymmetry represents the culmination of the search for fundamental symmetries that has dominated particle physics for 50 years. Traditionally, the constituents of matter (fermions) were regarded as different from the particles (bosons) transmitting the forces between them. In supersymmetry, fermions and bosons are unified. Intended for graduate students in particle physics, and researchers in experimental and phenomenological supersymmetry, |

this textbook, first published in 2007, provides a simple introduction to a previously formidably technical field. Its elementary, practical treatment brings readers to the frontier of contemporary research, in particular the experiments at the Large Hadron Collider. Theories are constructed through an intuitive 'trial and error' approach. Basic elements of spinor formalism and superfields are introduced, allowing readers to access more advanced treatments. Emphasis is placed on physical understanding, and on detailed derivations of important steps. Many short exercises are included, making for a valuable and accessible self-study tool.
