Record Nr. UNINA9910821422403321 Autore Ibanez Luis E. <1952-> Titolo String theory and particle physics: an introduction to string phenomenology / / Luis E. Ibanez, Angel M. Uranga Cambridge: New York, : Cambridge University Press, 2012 Pubbl/distr/stampa **ISBN** 1-107-22427-6 1-280-48557-4 1-139-23262-2 9786613580559 1-139-23039-5 1-139-22895-1 1-139-01895-7 1-139-23186-3 1-139-23340-8 Edizione [1st ed.] Descrizione fisica 1 online resource (xiii, 673 pages) : digital, PDF file(s) SCI040000 Classificazione Altri autori (Persone) UrangaA (Angel) Disciplina 539.7/258 Soggetti String models **Physics** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Title from publisher's bibliographic system (viewed on 05 Oct 2015). Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Machine generated contents note: Preface; 1. The standard model and beyond; 2. Supersymmetry; 3. Introduction to string theory: the bosonic string; 4. Superstrings; 5. Toroidal compactification of superstrings; 6. Branes and string duality; 7. Calabi-Yau compactification of heterotic superstrings; 8. Heterotic string orbifolds and other exact CFT constructions; 9. Heterotic string compactifications: effective action; 10. Type IIA orientifolds: intersecting brane worlds; 11. Type IIB orientifolds; 12. Type II compactifications: effective action; 13. String instantons and effective field theory; 14. Flux compactifications and moduli stabilization; 15. Moduli stabilization and supersymmetry breaking in string theory; 16. Further phenomenological properties. Strings and cosmology: 17. The

space of string vacua; Appendices; Index.

## Sommario/riassunto

String theory is one of the most active branches of theoretical physics and has the potential to provide a unified description of all known particles and interactions. This book is a systematic introduction to the subject, focused on the detailed description of how string theory is connected to the real world of particle physics. Aimed at graduate students and researchers working in high energy physics, it provides explicit models of physics beyond the Standard Model. No prior knowledge of string theory is required as all necessary material is provided in the introductory chapters. The book provides particle phenomenologists with the information needed to understand string theory model building and describes in detail several alternative approaches to model building, such as heterotic string compactifications, intersecting D-brane models, D-branes at singularities and F-theory.