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Autore	De Angelis Alessandro
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Note generali	Includes index.
Nota di contenuto	Understanding the universe: particles and their interactions -- The birth and the basics of particle physics -- Cosmic rays and the development of particle physics -- Particle detection -- Particles and symmetries -- Interactions and field theories -- The Higgs mechanism and the standard model of particle physics -- The standard model of cosmology and the dark universe -- Neutrino oscillations and masses -- Messengers from the high-energy universe -- Astrobiology, and the relation of fundamental physics to life.
Sommario/riassunto	This book introduces particle physics, astrophysics and cosmology. Starting from an experimental perspective, it provides a unified view of these fields that reflects the very rapid advances being made. This new edition has a number of improvements and has been updated to include material on the Higgs particle and to describe the recently discovered gravitational waves. Astroparticle and particle physics share a common problem: we still don’t have a description of the main ingredients of the Universe from the point of view of its energy budget. Addressing these fascinating issues, and offering a balanced introduction to particle and astroparticle physics that requires only a basic understanding of quantum and classical physics, this book is a

valuable resource, particularly for advanced undergraduate students and for those embarking on graduate courses. It includes exercises that offer readers practical insights. It can be used equally well as a self-study book, a reference and a textbook. .