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Nota di contenuto	Preface.- 1 An Overview of Astroparticle Physics.- 2 The Cosmic Rays and our Galaxy.- 3 Direct Cosmic Rays Detection: Protons, Nuclei, Electrons and Antimatter -- 4 Indirect Cosmic Rays Detection: Particle Showers in the Atmosphere -- 5 Diffusion of Cosmic Rays in the Galaxy -- 6 Acceleration Mechanisms and Galactic Cosmic Ray Sources -- 7 Ultra High Energy Cosmic Rays -- 8 The Sky Seen in -Rays -- 9 The TeV Sky and Multiwavelength Astrophysics -- 10 High-Energy Neutrino Astrophysics -- 11 Atmospheric Muons and Neutrinos -- 12 Connections between Physics and Astrophysics of Neutrinos -- 13 Microcosm and Macrocosm -- Index.

This book is an introduction to “multi-messenger” astrophysics. It covers the many different aspects connecting particle physics with astrophysics and cosmology and introduces astrophysics using numerous experimental findings recently obtained through the study of high-energy particles. Taking a systematic approach, it comprehensively presents experimental aspects from the most advanced laboratories and detectors, as well as the theoretical background. The book is aimed at graduate students and post-graduate researchers with a basic understanding of particle and nuclear physics. It will also be of interest to particle physicists working in accelerator/collider physics who are keen to understand the mechanisms of the largest accelerators in the Universe. The book draws on the extensive lecturing experience of Professor Maurizio Spurio from the University of Bologna.
