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Descrizione fisica	1 online resource (xum 51 pages) : illustrations (some color), charts
Collana	Essentials
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Nota di contenuto	Historical introduction to astroparticle physics -- Charged component of primary cosmic rays -- X-ray astronomy, gamma astronomy, neutrino astronomy -- Gravitational waves, cosmology, astrobiology.
Sommario/riassunto	In this essential, Claus Gruppen discusses astroparticle physics in a brief historical outline and describes the latest results without going into mathematical detail. Understood as an introduction to this new field of research, it gives an overview of what is going on in the sky, between the stars and between the galaxies. Much is already well understood, but every time a solution is found, new questions arise - the author also addresses this spectrum of questions with a few answers. Today, astroparticle physics is an active, interdisciplinary research area that encompasses and unites astronomy, cosmic rays and elementary particle physics. This Springer essential is a translation of the original German 1st edition essentials, Neutrinos, Dunkle Materie und Co. by Claus Gruppen, published by Springer Fachmedien Wiesbaden GmbH, part of Springer Nature in 2021. The translation was done with the help of artificial intelligence (machine translation by the service DeepL.com). A subsequent human revision was done primarily in terms of content, so that the book will read stylistically differently from a conventional translation. Springer Nature works continuously to further the development of tools for the production of books and on the related

technologies to support the authors The content Historical introduction to astroparticle physics Charged component of primary cosmic rays X-ray astronomy, gamma astronomy, neutrino astronomy Gravitational waves, cosmology, astrobiology The target groups Physics students Readers interested in modern astronomy and astrophysics The author Prof. Dr. Claus Grupen researches and teaches as emeritus at the University of Siegen. He was involved in experiments at the European Center for Elementary Particle Physics CERN and at the German Electron Synchrotron in Hamburg as well as in numerous activities in the field of cosmic rays. He is the author of books on particle detectors, radioactivity and cosmic cartoons.

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