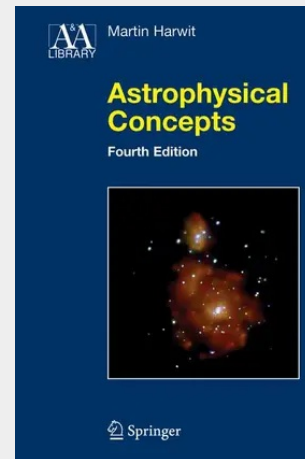


Astrophysical Concepts

Now in its 4th edition, this classic text for senior undergraduates and beginning graduate students in physics and astronomy presents a wide range of astrophysical concepts in sufficient depth to give the reader a quantitative understanding of the subject. The book outlines cosmic events, emphasizing physical concepts, but does not portray them in detail. Rather, it provides a series of astrophysical sketches exploring the scope of modern astrophysics and elementary problems concerning the scale of cosmic objects and events, and develops the basic physics needed to answer these questions, using specific astronomical processes as examples. The second half of the book enlarges on these topics and shows how we can obtain quantitative insights into the structure and evolution of stars, the dynamics of cosmic gases, the large-scale behavior of the universe, and the origins of life.

Thirty-three years have passed since the first edition of *Astrophysical Concepts* - appeared. During this time astrophysics has undergone major revolutions. We have gained new perspectives on the Universe with the aid of powerful gamma-ray, X-ray, and infrared telescopes, whose sensitivities could not have been imagined three decades earlier. We have become expert at snaring neutrinos to gain insight on - clear processes at work in the Sun and supernovae. We have direct evidence for the existence of neutron stars and gravitational waves, and persuasive arguments for the detection of black holes on scales of individual stars as well as galactic nuclei. Primordial fluctuations, remnants from the first moments in the expansion of the Universe have revealed themselves in the faint ripples marking the microwave sky. These ripples also document the first appearance of dark matter now known to have dominated the formation and evolution of all cosmic structure. And dark energy has gradually had to be acknowledged to be the dominant factor driving the expansion of the Universe today.



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