1. Record Nr. UNINA9910409987403321

Autore	Hentschke Reinhard
Titolo	A Short Course in General Relativity and Cosmology / / by Reinhard Hentschke, Christian Hölbling
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-46384-2
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (296 pages)
Collana	Undergraduate Lecture Notes in Physics, , 2192-4791
Disciplina	530.11
Soggetti	Cosmology Gravitation Astrophysics Mathematical physics Classical and Quantum Gravitation, Relativity Theory Theoretical Astrophysics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Overview -- Review of Concepts and Some Extensions Thereof -- Introduction to Multidimensional Calculus -- Field Equations of General Relativity -- Classical Tests of General Relativity -- Black Holes -- Basics of Modern Cosmology: Overview -- Friedmann-Robertson-Walker Cosmology -- Thermodynamics of the Universe -- Accelerated Expansion of the Universe -- Inflation -- Appendices A-F -- Index.
Sommario/riassunto	Unlike most traditional introductory textbooks on relativity and cosmology that answer questions like “Does accelerated expansion pull our bodies apart?”, “Does the presence of dark matter affect the classical tests of general relativity?” in a qualitative manner, the present text is intended as a foundation, enabling students to read and understand the textbooks and many of the scientific papers on the subject. And, above all, the readers are taught and encouraged to do their own calculations, check the numbers and answer the above and other questions regarding the most exciting discoveries and theoretical developments in general relativistic cosmology, which have occurred since the early 1980s. In comparison to these intellectual benefits the

text is short. In fact, its brevity without neglect of scope or mathematical accessibility of key points is rather unique. The authors connect the necessary mathematical concepts and their reward, i.e. the understanding of an important piece of modern physics, along the shortest path. The unavoidable mathematical concepts and tools are presented in as straightforward manner as possible. Even though the mathematics is not very difficult, it certainly is beneficial to know some statistical thermodynamics as well as some quantum mechanics. Thus the text is suitable for the upper undergraduate curriculum.