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Nota di contenuto	Preface -- Part I: Special Relativity in Review -- Chapter 1. A brief stroll in special relativity -- Chapter 2. Lorentz transformations -- Chapter 3. The motion of particles -- Part II: Vectors and Tensors -- Chapter 4. Riemann spaces and tensors -- Chapter 5. Affine connections and geodesics -- Chapter 6. Tensor analysis -- Part III: General Relativity -- Chapter 7. Classical gravity and geometry -- Chapter 8. Curved space and gravity -- Chapter 9. Spherically symmetric gravitational fields -- Chapter 10. Black holes and gravitational collapse -- Chapter 11. Linearized general relativity and gravitational waves -- Part IV: Cosmology -- Chapter 12. The Einstein field equations for cosmology -- Chapter 13. The cosmological metric -- Chapter 14. The dynamical equations of cosmology -- Chapter 15. Solutions for the present universe -- Chapter 16. Some properties of the LCDM Universe -- Chapter 17. Earlier times and radiation -- Chapter 18. A brief historical overview of the universe -- Chapter 19. Inflation and basic questions. .
Sommario/riassunto	Gravitational physics has now become a mainstream topic in physics and physics teaching. In particular cosmology and gravitational wave physics are at the focus of a great deal of current research. Thus it is important to introduce students to General Relativity as soon as reasonable. This textbook offers a brief but comprehensive treatment accessible to advanced undergraduate students, graduate students, and

any physicist or mathematician interested in understanding the material in a short time. The author, an experienced teacher of the subject, has included numerous examples and exercises to help students consolidate the ideas they have learned.

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