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Descrizione fisica	1 online resource (283 pages)
Collana	Graduate Texts in Physics, , 1868-4521
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Soggetti	Geometry, Differential Relativity (Physics) - Mathematics
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Differentiable manifolds -- Tangent vectors -- Tensors -- Semi-Riemann manifolds -- Special relativity -- Differential forms -- Covariant derivation of vector fields -- Curvature -- Matter -- Geodesy -- Covariant differentiation of tensor fields -- Lie derivation -- Integration on manifolds -- Non-rotating black holes -- Cosmology -- Rotating black holes -- An overview of string theory.
Sommario/riassunto	This book systematically develops the mathematical foundations of the theory of relativity and links them to physical relations. For this purpose, differential geometry on manifolds is introduced first, including differentiation and integration, and special relativity is presented as tensor calculus on tangential spaces. Using Einstein's field equations relating curvature to matter, the relativistic effects in the solar system including black holes are discussed in detail. The text is aimed at students of physics and mathematics and assumes only basic knowledge of classical differential and integral calculus and linear algebra.