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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Local theory of space and time -- Analysis on manifolds -- Space and time from a global point of view -- Pseudo-Riemannian manifolds -- General relativity -- Robertson-Walker cosmology -- Spherical symmetry -- Causality -- Singularity theorems.
Sommario/riassunto	This textbook is for mathematicians and mathematical physicists and is mainly concerned with the physical justification of both the mathematical framework and the foundations of the theory of general relativity. Previous knowledge of the relevant physics is not assumed. This book is also suitable as an introduction to pseudo-Riemannian geometry with emphasis on geometrical concepts. A significant part of the text is devoted to the discussion of causality and singularity theorems. The insights obtained are applied to black hole astrophysics, thereby making the connection to current active research in mathematical physics and cosmology.