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Collana	Fundamental Theories of Physics, , 0168-1222 ; ; 183
Disciplina	530.11
Soggetti	Gravitation Cosmology Physics Classical and Quantum Gravitation, Relativity Theory History and Philosophical Foundations of Physics
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	65 Years in and Around Relativity (C. H. Brans) -- Part I Scalar-Tensor Theories (Brans-Dicke Theory): Nonminimal Couplings in the Early Universe: Multifield Models of Inflation and the Latest Observations (D. I. Kaiser) -- A New Estimate of the Mass of the Gravitational Scalar Field for Dark Energy (Y. Fujii) -- Axion and dilaton + metric emerge jointly from an electromagnetic model universe with local and linear response behavior (F. W. Hehl) -- Gravitational theories with stable (anti-)de Sitter backgrounds (T. Biswas, A. Koshelev and A. Mazumdar) -- Rotating Boson Stars (E. W. Mielke) -- The Lambda-CDM Model is not a Universal Attractor of the Brans-Dicke Cosmology (I. Quiros) -- New Setting for Spontaneous Gauge Symmetry Breaking? (R. Jackiw and S.-Y. Pi) -- The Brans-Dicke theory and its experimental tests (M. P. McHugh) -- Part II Mach's Principle and Bell's inequality: Mach's Principle and the Origin of Inertia (B. Mashhoon) -- The Significance of Measurement Independence for Bell Inequalities and Locality (M. J. W. Hall) -- Part III Exotic Smoothness and Space-Time Models: Exotic Smoothness, Physics and Related Topics (J. Sladkowski) -- Model and Set-Theoretic Aspects of Exotic Smoothness Structures on $R^4$ (J. Król)

-- Exotic Smoothness on Spheres (D. Randall) -- Smooth Quantum Gravity: Exotic Smoothness and Quantum Gravity (T. Asselmeyer-Maluga).

#### Sommario/riassunto

In this book, leading theorists present new contributions and reviews addressing longstanding challenges and ongoing progress in spacetime physics. In the anniversary year of Einstein's General Theory of Relativity, developed 100 years ago, this collection reflects the subsequent and continuing fruitful development of spacetime theories. The volume is published in honour of Carl Brans on the occasion of his 80th birthday. Carl H. Brans, who also contributes personally, is a creative and independent researcher and one of the founders of the scalar-tensor theory, also known as Jordan-Brans-Dicke theory. In the present book, much space is devoted to scalar-tensor theories. Since the beginning of the 1990s, Brans has worked on new models of spacetime, collectively known as exotic smoothness, a field largely established by him. In this Festschrift, one finds an outstanding and unique collection of articles about exotic smoothness. Also featured are Bell's inequality and Mach's principle. Personal memories and historical aspects round off the collection.