

1. Record Nr.	UNINA9910257392003321
Titolo	Quantum Gravity : From Theory to Experimental Search / / edited by Domenico J. W. Giulini, Claus Kiefer, Claus Lämmerzahl
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2003
ISBN	3-540-45230-3
Edizione	[1st ed. 2003.]
Descrizione fisica	1 online resource (XII, 402 p.)
Collana	Lecture Notes in Physics, , 1616-6361 ; ; 631
Disciplina	530.14/3
Soggetti	Elementary particles (Physics) Quantum field theory Geometry, Differential Gravitation Elementary Particles, Quantum Field Theory Differential Geometry Classical and Quantum Gravity
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Quantum Gravity - A General Introduction -- That Strange Procedure Called Quantisation -- Lectures in Loop-Quantum Gravity -- A Discrete History of the Lorentzian Path Integral -- Introduction to String Theory -- Quantum Theory of Gravitational Collapse -- Primordial Black Holes as a Probe of the Early Universe, Gravitational Collapse, High Energy Physics and Quantum Gravity -- On the Assignment of Entropy to Black Holes -- Physics With Large Extra Dimensions and Non-Newtonian Gravity at Sub-MM Distance -- Quantum States of Neutrons in the Gravitational Field and Limits for Non-Newtonian Interaction in the Range Between 1 mm and 10 mm -- The Einstein Equivalence Principle and the Search for New Physics.
Sommario/riassunto	The relation between quantum theory and the theory of gravitation remains one of the most outstanding unresolved issues of modern physics. According to general expectation, general relativity as well as quantum (field) theory in a fixed background spacetime cannot be fundamentally correct. Hence there should exist a broader theory

comprising both in appropriate limits, i.e., quantum gravity. This book gives readers a comprehensive introduction accessible to interested non-experts to the main issues surrounding the search for quantum gravity. These issues relate to fundamental questions concerning the various formalisms of quantization; specific questions concerning concrete processes, like gravitational collapse or black-hole evaporation; and the all important question concerning the possibility of experimental tests of quantum-gravity effects.
