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2.1. General framework, and quantum theory2.2. Emergence of classical spacetime; 2.3. Paradigm shift and resolution of \problem of time""; 2.4. Improvements to the quantum theory; 3. Further Discussions; References; Quantum Corrections to Entropic Gravity P. Chen and C.-H. Wang; 1. Introduction; 2. Entropic Gravity; 2.1. Entropy variation law; 2.1.1. Verlinde's approach; 2.1.2. Fursaev's approach; 2.1.3. Our approach; 2.1.4. Temperature; 3. Generalized Uncertainty Principle; 4. Quantum Effects in Entropic Gravity; 5. Conclusion and Discussions; Acknowledgements; References
Black Holes and the Generalized Uncertainty Principle B. J. Carr

Sommario/riassunto

The past two decades have observed dramatic advancement in our understanding of the universe. Such progress in turn has triggered further questions yet to be answered. Aspired by such prospects, several institutions dedicated to the research of cosmology have been established in the last decade, which include the Leung Center for Cosmology and Particle Astrophysics (LeCosPA) at the National Taiwan University. To celebrate its 4th anniversary the First LeCosPA Symposium was held in February 2012 at NTU. Internationally renowned physicists and authorities in cosmology, particle astrophysics, gravity and general relativity, and high energy physics convened to survey our present understanding of the universe and to explore the future prospects from both theoretical and experimental perspectives. Topics covered include the detection and the nature of dark matter and dark energy, the fundamental understanding of space, time, mass and gravity itself, cosmological constant and vacuum energy, etc. This book should be valuable to researchers and students in the field of cosmology and particle astrophysics.