

1. Record Nr.	UNINA9910146621703321
Titolo	Quantum analogues : from phase transitions to black holes and cosmology // William Unruh, Ralf Schutzhold, editors
Pubbl/distr/stampa	Berlin ; ; Heidelberg : , : Springer-Verlag, , [2007] ©2007
ISBN	1-280-85229-1 9786610852291 3-540-70859-6
Edizione	[1st ed. 2007.]
Descrizione fisica	1 online resource (305 p.)
Collana	Lecture Notes in Physics ; ; Volume 718
Disciplina	523.1
Soggetti	Quantum cosmology Black holes (Astronomy)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Selected lectures from the international workshop on "Quantum Simulations via Analogues" which took place at the Max Planck Institute for the Physics of Complex Systems in Dresden (Germany) from July 25th till 28th in 2005"--Acknowledgements.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	The Analogue Between Rimfall and Black Holes -- Effective Horizons in the Laboratory -- Quantum Phase Transitions from Topology in Momentum Space -- Superfluid 3He as a Model System for Cosmology - Experimental Point of View -- Dynamical Aspects of Analogue Gravity: The Backreaction of Quantum Fluctuations in Dilute Bose-Einstein Condensates -- Analogue Space-time Based on 2-Component Bose-Einstein Condensates -- Links. Relating Different Physical Systems Through the Common QFT Algebraic Structure -- The Classical and Quantum Roots of Pauli's Spin-statistics Relation -- Black Hole Lasers Revisited -- Cosmic Strings.
Sommario/riassunto	Recently, analogies between laboratory physics (e.g. quantum optics and condensed matter) and gravitational/cosmological phenomena such as black holes have attracted an increasing interest. Especially in view of the tremendous progress of the experimental capabilities (e.g. regarding superfluids such as liquid Helium or gaseous Bose-Einstein condensates), exotic quantum effects such as Hawking radiation might

come into reach for the first time. This book contains a series of selected lectures devoted to this new and rapidly developing interdisciplinary field of research. Various analogies connecting (apparently) different areas in physics are presented in order to bridge the gap between them and to provide an alternative point of view - which will provide a deeper insight for graduate students as well as senior scientists.
