

1. Record Nr.	UNISA996466701603316
Titolo	Analogue Gravity Phenomenology [[electronic resource]] : Analogue Spacetimes and Horizons, from Theory to Experiment // edited by Daniele Faccio, Francesco Belgiorno, Sergio Cacciatori, Vittorio Gorini, Stefano Liberati, Ugo Moschella
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2013
ISBN	3-319-00266-X
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (XX, 439 p. 124 illus., 95 illus. in color.)
Collana	Lecture Notes in Physics, , 0075-8450 ; ; 870
Disciplina	530.1
Soggetti	Gravitation Mathematical physics Cosmology Phase transformations (Statistical physics) Condensed materials Optics Electrodynamics Quantum field theory String theory Classical and Quantum Gravitation, Relativity Theory Mathematical Physics Quantum Gases and Condensates Classical Electrodynamics Quantum Field Theories, String Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Black Holes and Hawking Radiation in Spacetime and its Analogues -- Survey of Analogue Spacetimes -- Cosmological Particle Creation in the Lab -- Irrotational, Two-Dimensional Surface Waves in Fluids -- The Basics of Water Waves Theory for Analogue Gravity -- The erenkov Effect Revisited: From Swimming Ducks to Zero Modes in Gravitational Analogues -- Some Aspects of Dispersive Horizons: Lessons from

Surface Waves -- Classical Aspects of Hawking Radiation Verified in Analogue Gravity Experiment -- Understanding Hawking Radiation from Models of Atomic Bose-Einstein Condensates -- Transformation Optics -- Laser Pulse Analogues for Gravity -- An All-Optical Event Horizon in an Optical Analogue of a Laval Nozzle -- Lorentz Breaking Effective Field Theory and Observational Tests -- The Topology of Quantum Vacuum -- Einstein² :Brownian Motion Meets General Relativity -- Astrophysical Black Holes: Evidence of a Horizon?.

Sommario/riassunto

Analogue Gravity Phenomenology is a collection of contributions that cover a vast range of areas in physics, ranging from surface wave propagation in fluids to nonlinear optics. The underlying common aspect of all these topics, and hence the main focus and perspective from which they are explained here, is the attempt to develop analogue models for gravitational systems. The original and main motivation of the field is the verification and study of Hawking radiation from a horizon: the enabling feature is the possibility to generate horizons in the laboratory with a wide range of physical systems that involve a flow of one kind or another. The years around 2010 and onwards witnessed a sudden surge of experimental activity in this expanding field of research. However, building an expertise in analogue gravity requires the researcher to be equipped with a rather broad range of knowledge and interests. The aim of this book is to bring the reader up to date with the latest developments and provide the basic background required in order to appreciate the goals, difficulties and success stories in the field of analogue gravity. Each chapter of the book treats a different topic explained in detail by the major experts for each specific discipline. The first chapters give an overview of black hole spacetimes and Hawking radiation before moving on to describe the large variety of analogue spacetimes that have been proposed and are currently under investigation. This introductory part is then followed by an in-depth description of what are currently the three most promising analogue spacetime settings, namely surface waves in flowing fluids, acoustic oscillations in Bose-Einstein condensates and electromagnetic waves in nonlinear optics. Both theory and experimental endeavours are explained in detail. The final chapters refer to other aspects of analogue gravity beyond the study of Hawking radiation, such as Lorentz invariance violations and Brownian motion in curved spacetimes, before concluding with a return to the origins of the field and a description of the available observational evidence for horizons in astrophysical black holes.

2. Record Nr.	UNINA9910220038603321
Autore	Gayane Manukyan
Titolo	Microbial and Environmental Factors in Autoimmune and Inflammatory Diseases
Pubbl/distr/stampa	Frontiers Media SA, 2017
Descrizione fisica	1 online resource (193 p.)
Collana	Frontiers Research Topics
Soggetti	Medicine
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>In recent years there has been a substantial increase in the number of diseases with the inflammatory component such as such as allergy, asthma, rheumatoid arthritis, inflammatory bowel disease (IBD, which includes ulcerative colitis and Crohn's disease), chronic sinusitis, and many other conditions. The majority of these diseases are multifactorial, with the contribution of genetic and environmental factors. Among the latter, the role of certain microorganisms and viruses in triggering or sustaining the inflammatory process is most controversial. In rheumatoid arthritis, for example, the following bacteria and viruses have been implicated in triggering the disease: Mycoplasma spp., Proteus mirabilis, Escherichia coli, Staphylococcus spp., Bordetella spp., Acinetobacter spp., the parvoviruses, Epstein-Barr virus, and retroviruses. The list of putative microbial triggers of rheumatoid arthritis is still growing, and it becomes essentially impossible to make a causation link between certain infectious agents and the disease. In the light of these disappointing results there are calls for even larger studies with the use of more advanced and large-scale technologies. The primary function of the immune system is the maintenance of body homeostasis and protection against any threats to it via several lines of elaborate and complex immune defense. Given even higher complexity that involves the microbiota and the corresponding host-microbe interaction, the conditions for this equilibrium become even more challenging. In the absence of a defined</p>

pathogen, for example, the spectrum of microorganisms involved in triggering inappropriate immune responses may include polymicrobial communities or the cumulative effect of several microbial/viral factors. Under the normal circumstances there is a fine-tuned balance between commensal microbiota and the host's immune responses. However, when this balance is compromised, for example in IBD, a massive immune response is launched against commensal microbiota resulting in chronic inflammation. Besides the microbial/viral factors, the balance of the immune system can be compromised by other causes. Given, for example, the close and inclusive interaction of the immune, nervous and endocrine systems, the list of these provoking factors can expand even more. For instance, it has been demonstrated that even mild sleep deprivation may increase the production of interleukin-6 and C-reactive protein. Understanding the complex role of microbial and environmental factors in inflammatory and autoimmune diseases, therefore, is the main subject of this topic.
