

1. Record Nr.	UNISA996508664803316
Autore	Mariz Tiago
Titolo	Lorentz symmetry breaking : classical and quantum aspects / / Tiago Mariz, Jose Roberto Nascimento, Albert Petrov
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2023] ©2023
ISBN	3-031-20120-5
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (114 pages)
Collana	SpringerBriefs in Physics, , 2191-5431
Disciplina	530.143
Soggetti	Lorentz transformations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Introduction -- 2. Classical aspects of the Lorentz symmetry breaking -- 3. Perturbative generation of Lorentz-violating terms -- 4. Lorentz symmetry breaking and noncommutativity -- 5. Lorentz symmetry breaking and supersymmetry -- 6. Lorentz and CPT symmetry breaking in gravity -- 7. Experimental studies of the Lorentz symmetry breaking.
Sommario/riassunto	This book presents a review of various issues related to Lorentz symmetry breaking. Explicitly, we consider (i) motivations for introducing Lorentz symmetry breaking, (ii) classical aspects of Lorentz-breaking field theory models including typical forms of Lorentz-breaking additive terms, wave propagation in Lorentz-breaking theories, and mechanisms for breaking the Lorentz symmetry; (iii) quantum corrections in Lorentz-breaking theories, especially the possibilities for perturbation generating the most interesting Lorentz-breaking terms; (iv) correspondence between non-commutative field theories and Lorentz symmetry breaking; (v) supersymmetric Lorentz-breaking theories; and (vi) Lorentz symmetry breaking in a curved space-time. We close the book with the review of experimental studies of Lorentz symmetry breaking. The importance and relevance of these topics are explained, first, by studies of limits of applicability of the Lorentz symmetry, second, by searches of the possible extensions of the standard model, including the Lorentz-breaking ones, and need to study their properties, third, by the relation between Lorentz symmetry breaking with string theory, fourth, by the problem of formulating a

consistent quantum gravity theory, so that various modified gravity models are to be examined.
