Wang, Xiao-Song

Derivation of generalized Einstein’s equations of gravitation in some noninertial reference frames based on the theory of vacuum mechanics.  (English) [Zbl 0737.1589]


Summary: When solving Einstein’s equations for an isolated system of masses, V. Fock introduced a harmonic reference frame and obtained an unambiguous solution. Further, he concluded that there existed a harmonic reference frame which was determined uniquely apart from a Lorentz transformation if suitable supplementary conditions were imposed. It is known that wave equations keep the same form under Lorentz transformations. Thus, we speculate that Fock’s special harmonic reference frames may provide us with a clue to derive Einstein’s equations in some special class of noninertial reference frames. Following this idea, generalized Einstein’s equations in some special noninertial reference frames are derived based on the theory of vacuum mechanics. If the field is weak and the reference frame is quasi-inertial, these generalized Einstein’s equations reduce to Einstein’s equations. Thus, this theory may also explain all the experiments which support the theory of general relativity. There exist some differences between this theory and the theory of general relativity.

MSC:
83-XX Relativity and gravitational theory
81-XX Quantum theory

Keywords:
Einstein’s equations; gravitation; general relativity; principle of equivalence; gravitational aether; vacuum mechanics

Full Text: DOI

References: