

Gravitational Gauge Interactions of Dirac Field

WU Ning

Institute of High Energy Physics, P.O. Box 918-1, Beijing 100039, China
(Received: 2003-6-11; Revised: 2003-7-21)

Abstract: Gravitational interactions of Dirac field are studied in this paper. Based on gauge principle, quantum gauge theory of gravity, which is perturbatively renormalizable, is formulated in the Minkowski space-time. In quantum gauge theory of gravity, gravity is treated as a kind of fundamental interactions, which is transmitted by gravitational gauge field, and Dirac field couples to gravitational field through gravitational gauge covariant derivative. Based on this theory, we can easily explain gravitational phase effect, which has already been detected by COW experiment.

PACS: 04.60.-m, 11.15.-q, 11.10.Ef,

Key words: quantum gravity, gauge field, Dirac field

[\[Full text: PDF\]](#)

Close