Contribution ID: 8

Type: not specified

Effective gravitational potential induced by a static metric of spacetime

Wednesday, 17 September 2014 16:50 (20 minutes)

We analyse the non-relativistic approximation of the Dirac equation for slow fermions moving in spacetimes with a static metric, caused by the weak gravitational field of the Earth and a chameleon field, and derive the most general effective gravitational potential, induced by a static metric of spacetime. The derivation of the non-relativistic Hamilton operator of the Dirac equation is carried out by using a standard Foldy-Wouthuysen (SFW) transformation. We discuss the chameleon field as source of a torsion field and torsion-matter interactions.

Primary author: Prof. IVANOV, Andrei (TU Vienna)
Co-author: Dr PITSCHMANN, Mario (TU Vienna)
Presenter: Prof. IVANOV, Andrei (TU Vienna)
Session Classification: session II