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Parity nonconservation induced by spacetime geometry

The coupling of fermions with gravity can be non-universal, leading to a current-current four-fermion interaction beyond the Standard Model that also generically has different couplings for different chiralities of fermions. Such an interaction is found to break discrete symmetries like parity and charge conjugation. We calculate the contribution of this interaction to parity-violating electron scattering processes and arrive at an estimate of an upper bound on the coupling constants.

Field of contribution

Phenomenology

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