

Weak Charge of ^{133}Cs

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Measurements of parity nonconservation (PNC) in atoms provide sensitive tests of extensions to the Standard Model of electroweak interactions. Measurements of atomic PNC have been made at the 1% level of accuracy in several heavy atoms and to 0.3% in cesium. Combining the precisely measured PNC amplitude in cesium with the most accurate available atomic structure calculations, including corrections from the Breit interaction, vacuum polarization, the nuclear skin effect, gives a value of the weak charge of cesium that differs from that predicted by the Standard Model by about 2 standard deviations.