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Lorentz Invariance & CPT symmetry theory motivation

Monday, 24 May 2021 08:40 (25 minutes)

The prospects for testing Lorentz and CPT symmetry in muon g-2 experiments are presented. Using muons for testing Lorentz and CPT symmetry is essential as existing constraints on muon Lorentz- and CPT-violating operators comprise only a small fraction of the available limits. Possible signals for Lorentz and CPT violation in g-2 experiments include annual and sidereal variations of the spin-precession frequency. The advantages of performing negative muon measurements are considered. Fermilab and J-PARC experiments are sensitive to slightly different combinations of Standard-Model Extension (SME) coefficients. A discussion about the relative advantages of both experiments is included.

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