

Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Short-Range Test for Lorentz Violation in Gravity RUI XU, Physics Department, Indiana University, Bloomington, QUENTIN G. BAILEY, Embry-Riddle Aeronautical University, V. ALAN KOSTELECKÝ, Physics Department, Indiana University, Bloomington — Lorentz symmetry is an essential property of modern physics. However, some candidate theories of quantum gravity have solutions that break Lorentz symmetry, and signals may be detectable in current experiments. By investigating in the general effective field theory for gravity, called the gravitational Standard-Model Extension, we find that short-range experiments can detect Lorentz violation. This talk discusses corrections from Lorentz violation to the Newtonian gravitational force and the corresponding effects in short-range experiments, including recent measurements.

Rui Xu
Physics Department, Indiana University, Bloomington

Date submitted: 07 Jan 2015

Electronic form version 1.4