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Short-Range Tests of the Gravity Sector in the Standard-Model Extension RUI XU, Indiana University Bloomington, QUENTIN G. BAILEY, Embry-Riddle Aeronautical University, V. ALAN KOSTELECKÝ, Indiana University Bloomington — Lorentz symmetry is an essential property of modern physics. However, some attempts to unify quantum theory and general relativity suggest tiny violations of Lorentz symmetry could appear in nature. The Standard-Model Extension is a general framework to describe Lorentz violation within our existing physics using effective field theory. It gives many interesting corrections to existing physical phenomena, including corrections to the properties of elementary particles and the fundamental forces. Many of these corrections can be tested with current high-precision experiments. This talk will discuss corrections to the Newtonian potential and their implications for experimental tests of gravity at short ranges.

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