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Short range gravity and T-Violation

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A torsion balance experiment Newton-IVh at Rikkyo University, aiming to test gravitational inverse square law at millimeter scale, and the MTV-G experiment searching a strong gravity at around nuclei utilizing detector setup for a T-Violation (the MTV) experiment at TRIUMF will be introduced. In addition, comparison with the LHC results on search for the large extra dimension and the sensitivity of the short range gravity experiments will be discussed on the contexts of conventional Yukawa and power law parameterizations. The experimental constraints obtained from atomic spectroscopy including anti-protonic helium atom, together with our results at Rikkyo University on the test of universality of free fall in centimeter scale, will also be discussed as a test of inverse square law and composition depending gravity, which can be investigated at antimatter gravity experiments.