

Abstract for an Invited Paper
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Experimental Results on Gravity at Short Distances¹

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A number of today's most fundamental physical mysteries have gravity at their core. Why is dark energy, known to us through its repulsive gravitational effect, so small or non-zero? Why is gravity's energy scale so drastically different from that of the other fundamental forces? Are there hidden extra dimensions? Small-scale precision gravity experiments are an elegant means of searching for clues about and answers to these questions. I present results from the Eöt-Wash group at the University of Washington. We conducted three torsion-balance experiments to test the gravitational inverse-square law from separations of 9.53mm down to $55\mu\text{m}$. Our results constrain new gravity-strength yukawa-type interactions to have a length scale $\lambda \leq 56\mu\text{m}$ at 95% confidence.

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