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## Search for Lorentz Violation in a Short-Range Gravity Experiment

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We report on the progress of a continuing experiment designed to be sensitive to gravity and possible new forces in nature at length scales below 50 microns. The experiment uses 1 kHz mechanical oscillators as test masses with a stiff conducting shield between them to suppress backgrounds, a technique that has demonstrated the capability to probe exceptionally small distances using large masses, and to operate at the limit of instrumental thermal noise at room temperature. The experiment has been used to set limits on Lorentz violation in the pure gravity sector of the Standard-Model Extension. On account of the planar test mass geometry, nominally null with respect to inverse-square forces, the limits derived for the SME coefficients of Lorentz violation are on the order of  $s \sim 10000$ .

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