

Abstract Submitted  
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**High precision test of the equivalence principle** STEPHAN SCHLAMMINGER, TODD WAGNER, KI-YOUNG CHOI, JENS GUNDLACH, ERIC ADELBERGER, University of Washington — The equivalence principle is the underlying foundation of General Relativity. Many modern quantum theories of gravity predict violations of the equivalence principle. We are using a rotating torsion balance to search for a new equivalence principle violating, long range interaction. A sensitive torsion balance is mounted on a turntable rotating with constant angular velocity. On the torsion pendulum beryllium and titanium test bodies are installed in a composition dipole configuration. A violation of the equivalence principle would yield to a differential acceleration of the two materials towards a source mass. I will present measurements with a differential acceleration sensitivity of  $3 \times 10^{-15} \text{ m/s}^2$ .

Stephan Schlamming  
University of Washington

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