



# PHYSICS COLLOQUIUM

## Gravity on the Test Bench

### Torsion Balance Renaissance

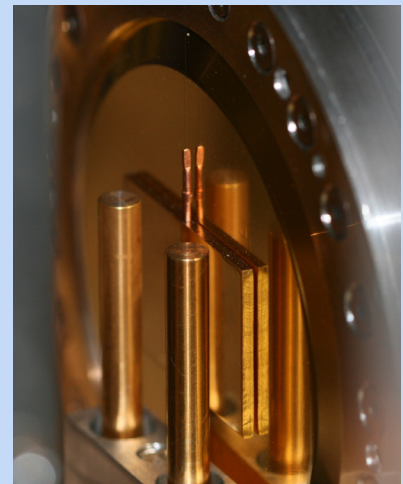


## Jens Gundlach

University of Washington

Host: Heeger and Ramsey-Musolf

**Abstract:** In the last two decades torsion balances have been reintroduced to modern physics. We have built highly refined torsion balances to search for subtle deviations from ordinary weak-field gravity; in particular, we have tested the equivalence principle to unprecedented precision, including a test searching for non-gravitational accelerations towards dark matter. We have built special torsion balances to test the  $1/r^2$ -law of gravity for distance scales as small as a few tens of micrometers. Furthermore we have measured Newton's constant with unmatched precision and have tested  $F=ma$ . We are also using our ultra-sensitive torsion balance instruments to look for stray forces that may affect the gravity wave observatories LIGO and LISA.



2241 Chamberlin Hall • Friday, February 13, 2009 • 4:00 P.M.

cookies & coffee served at 3:30 p.m.