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Capacitively-coupled differential position detection in the development of a high-sensitivity torsion balance CHARLES RACKSON, ALEX WATT, WOO-JOONG KIM, Seattle University, SEATTLE UNIVERSITY TEAM — We report on the development of a high-sensitivity torsion balance using a capacitively-coupled Wheatstone Bridge. The torsion balance will be employed to measure the Casimir Force, with a particular emphasis on the surface patch effects that are ubiquitous on metallic surfaces. We will show that these effects also play a significant role in another class of experiments involving quantum-point contacts between two metal wires.

Charles Rackson
Seattle University

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