

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Saturation effects in dispersion interactions BO E. SERNELIUS, Linköping University — The interest in Casimir interactions has been very strong during the last decade. This increase in interest was spurred by the torsion pendulum experiment by Lamoreaux which produced results with good enough accuracy for the comparison between theory and experiment to be feasible. Theory and experiment agree quite well for low temperatures. However at room temperature, where most experiments are performed there are serious deviations. Each new experiment has lead to new puzzling discrepancies between theory and experiment. Theorists have been forced to resort to phenomenological approaches to the problems, with new prescriptions for each new experiment. Here we address three experiments: Casimir pressure between a gold sphere and a gold plate; Casimir force between a gold sphere and a laser excited silicon membrane; Casimir force between a Rb atom and a fused silica wall. In all these different experiments we show that inclusion of saturation effects makes the discrepancies go away.

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Date submitted: 20 Nov 2008

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