Geometric Weakening of the Casimir Interaction[1] LIVIU MA-
TEESCU, New Jersey Institute of Technology, MARTIN SCHADEN, Rutgers Uni-
versity in Newark — We examine the dependence of the Casimir interaction between
separate (metallic) bodies on their geometry. From a semi-classical point of view
it depends strongly on whether the dominant periodic orbits are stable or unstable
and on the number of focal points. We give a very simple semiclassical argument
for the theorem [1] that mirror-symmetric periodically corrugated metallic surfaces
always attract. Although counter-intuitive because the Van DerWaals interactions
between individual pairs of atoms are attractive at long range, we argue that this
need not be the case for multi-atom interactions. Semi-classical methods are used to
determine the shape of surfaces with minimal Casimir interaction. [1] O.Kenneth,
I. Klich, Phys.Rev.Lett. 97, 160401 (2006)

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