

Abstract Submitted
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The Antibubble as a Casimir force Phenomenon and its Relation to ZPF Theories of Gravitation JOHN BRANDENBURG, Orbital Technologies Corporation — The hypothesis that the ‘anti-bubble’ (1) in water owes its existence to Casimir forces is proposed, based on a model of Quantum ZPF (Zero Point Fluctuation) interaction with matter. The Casimir effect can be explained by imbalanced radiation pressure from the ZPF and is linked to Gravity. This concept is extended to the phenomena of anti-bubble and “boules” : drops of water levitated above the surface of water. In the case of the anti-bubble the water surfaces are kept apart stably by a force of approximately 10^3 dynes /cm² with separations of the order of a micron (2). The hypothesized ZPF energy density is much stronger than seen in Casimir forces between metal plates and is hypothesized to be due trapped ZPF energy and linked to the unusual properties of water. Unlike Casimir repulsion derived from existing models (3) this hypothetical repulsive trapped ZPF force can arise between similar substances of suitable properties. A model of ZPF interaction with water that creates a short range repulsion between parallel water surfaces will be presented based on the principle of ‘Nondissipative Ponderomotive Forces’ of ZPF. If true, this hypothesis may allow tabletop studies of ZPF forces and perhaps Gravitation. (1) Strong, C.L., (1974) Sci. American, 230,116-120. (2) Dorbolo, S. et. al. (2003) New. Jou. Of Phys. 5, (1) 161. (3) Dzyaloshinskii, I. et al. (1961), Sov. Phys. Uspekhi, 4, (2) 153.

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