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Quantum fluctuations, dispersive forces, some related effects and recent research

We give an overview of quantum fluctuations and dispersive forces, briefly discussing, for example, the van der Waals, Casimir-Polder, Casimir, and dynamical Casimir forces. We make a brief discussion on some main articles on these phenomena, also presenting some contributions to the knowledge of these effects obtained by our research group in UFPA-Brazil.
For instance: our prediction of the peak, valley, and intermediate regimes in the lateral van der Waals force; of a repulsive lateral van der Waals force; the possibility of generating motion of an object, induced by asymmetric excitation of the quantum vacuum; the existence of relativistic (non-parabolic) bands in the discrete spectrum of created particles in an oscillating cavity; the prediction of an enhancement of the dynamical Casimir effect by decreasing the mirror reflection.

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