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Influence of dissipation on two-atom dispersion interactions[1] PABLO BARCELLONA, STEFAN YOSHI BUHMANN, Albert-Ludwigs-University of Freiburg, Institute of Physics — We consider the dispersion interaction between two neutral, ground-state atoms at zero and finite temperature by means of a dynamical approach. Our result differs from the previous ones obtained with time-independent perturbation theory because it correctly accounts for the influence of dissipation via the atomic decay rates. Modern measurements of Casimir force seem to suggest a suppressed influence of dissipation. Our new result shows similar features and can hence help resolve the Drude-plasma debate. We also consider the interaction between a ground-state atom and an excited atom. There are discordant results in the literature for the retarded potential: one oscillating and one monotonous. Our dynamical result uniquely leads to the oscillating result when taking into account the decay rates.

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