

**Transmitting the signal of “nothing”:
Giant vacuum forces via transmission lines**

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Quantum electromagnetic fluctuations induce forces between neutral particles, namely, the van der Waals (vdW) and Casimir interactions. Here we show that these fundamental interactions can be enhanced by **many orders of magnitude** upon changing the character of the mediating vacuum photon-modes. We consider two dipoles in the vicinity of any standard electric transmission line and find analytically that the interaction scales non-trivially with the inter-dipolar distance, resulting in a strong and long-range interaction. This may have profound implications on the non-additivity of vdW and Casimir interactions in many-particle systems, and opens the door for Casimir Physics in 1d. We discuss the possibilities of measuring this effect, e.g. in a coplanar waveguide line.