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## **One-loop correction to the photon velocity in Lorentz-violating QED**

*Tuesday, 10 July 2018 15:30 (30 minutes)*

We calculate a finite momentum-dependent part of the photon polarization operator in a simple model of Lorentz-violating quantum electrodynamics nonperturbatively at all orders of Lorentz-violating parameters. We sum one-particle reducible diagrams into the modified photon propagator, and determine the physical photon dispersion relation as the location of its pole. The photon dispersion relation, as well as its group velocity, acquires the one-loop momentum-dependent radiative correction. We constrain the Lorentz-violating parameters for heavy charged fermions (muon,  $\tau$ -lepton, top-quark) from the photon timing observations.

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