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Nonminimal Lorentz Violation in Electrodynamics and Applications ZONGHAO LI, V. ALAN KOSTELECKY, Indiana Univ - Bloomington — Lorentz violation can emerge in certain theoretical schemes unifying General Relativity and the Standard Model, and it is a popular candidate for modifications to low-energy physics. The Standard-Model Extension (SME) is a comprehensive framework designed to describe general Lorentz violation in the context of realistic effective field theory. Many experimental studies of minimal Lorentz-violating terms in the SME have been performed in the literature. In this talk, we obtain all nonminimal Lorentz-violating terms in electrodynamics and demonstrate some applications to experiments. In particular, we use existing experimental results for photon-photon scattering to place first constraints on certain nonminimal coefficients for Lorentz violation in the photon sector.

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