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Quantization of Lorentz Symmetry Violating Electromagnetism
MICHAEL HOHENSEE, DAVID PHILLIPS, RONALD WALSWORTH, Harvard-Smithsonian CfA — We present the non-relativistic quantization of light in the context of the Standard Model Extension. Deriving the single-quantum dispersion relation permits us to determine the recoil associated with transitions between atomic states. This may allow atom interferometer experiments to act as sensitive probes of Lorentz symmetry violation in QED. The formalism may also simplify theoretical studies of general Lorentz violation in more complicated systems.

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