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**Prospects for Lorentz- and CPT-violation searches with atomic spectroscopy experiments** ARNALDO J. VARGAS, V. ALAN KOSTELECKÝ, Indiana University — It has been suggested that tiny deviations from Lorentz and CPT symmetry might be low-energy signals for a theory that correctly describes gravity at the quantum level. One interesting option is to use atomic spectroscopy experiments to search for these tiny deviations. The prospects for finding evidence for Lorentz violation in this way are studied within the framework of the Standard-Model Extension. The discussion considers commonly measured atomic transitions in experiments both with conventional matter and with more exotic atoms such as antihydrogen, muonium, and muonic hydrogen. Potential signals are identified and the relation between these signals and Lorentz-violation operators of arbitrary mass dimension is explained. Where available, constraints from existing data are obtained.

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