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Searches for Lorentz and CPT Violation with Fermions in Penning Traps YUNHUA DING, V. ALAN KOSTELECKÝ, Indiana University - Bloomington — A theoretical analysis is performed of the prospects for detecting Lorentz and CPT violation in Penning-trap experiments with trapped particles and antiparticles. Using the general effective field theory called the Standard-Model Extension, we study signals in anomaly and cyclotron frequencies arising from Lorentz- and CPT-violating operators of arbitrary mass dimensions. Constraints on coefficients for Lorentz and CPT violation are extracted from existing data, and sensitivities attainable in forthcoming Penning-trap experiments are discussed.

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