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**Testing Lorentz and CPT symmetry in Penning traps** YUNHUA DING, ALAN KOSTELECKY, Indiana University-Bloomington, LOCAL LORENTZ AND GRAVITY TEAM — The Standard Model is phenomenologically successful in explaining particles and the complex nongravitational interactions between them. The CPT theorem, linking Lorentz and CPT symmetry, is a key property of this theory. However, some attempts to unify quantum physics with gravity suggest that tiny departures from Lorentz invariance could arise in nature and produce signals in high-precision experiments. In this talk, a theoretical analysis is performed of Penning-trap experiments confining a single charged particle or its antiparticle. Comparative measurements of cyclotron and anomaly frequencies in the electron-positron system are studied to determine the sensitivity to possible effects from CPT and Lorentz violation.

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