Testing Lorentz and CPT invariances in quantum electrodynamics with Penning traps YUNHUA DING, V. ALAN KOSTELECKÝ, Indiana University Bloomington — The Lorentz and CPT invariances of relativity are fundamental in physics. However, tiny violations of these invariances could emerge in an underlying unified theory such as strings. This talk explores Lorentz- and CPT-violating quantum electrodynamics, presenting the general Lagrange density for Lorentz violation with operators of mass dimension up to six and analyzing results from precision experiments on particles and antiparticles confined to a Penning trap. Observable signals are discussed, and new bounds for Lorentz-violating coefficients are extracted.

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