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EDM experimental measurements

Monday 17 July 2023 14:00 (30 minutes)

The imbalance of matter and anti-matter in our universe provides compelling motivation to search for new particles that violate CP symmetry. The fields associated with the hypothetical new particles would interact with Standard Model particles, giving them CP-violating electric dipole moments (EDMs). In this talk, I will present the most precise measurement yet of the electron's EDM using electrons confined inside molecular ions, subjected to a huge intra-molecular electric field, and evolving coherently for up to 3 s. Our sensitivity to 10^{-19} eV shifts in the molecular energy levels provides constraints on broad classes of new physics above 10^{13} eV.

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