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Searches for P- and T-violating permanent electric dipole moments

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A permanent electric dipole moment (EDM) of a particle or system is a measure of the separation of charge along its angular momentum axis and is a direct signal of both parity (P) violation time-reversal (T) violation and, assuming CPT -symmetry, charge-parity (CP) violation. For nearly 70 years EDMs have been studied, first as a signal of a P -violation and then as a signal of CP -violation. Contemporary motivations include the role that CP -violation plays in explaining the cosmological matter-antimatter asymmetry and the search for new physics. Experiments on a variety of systems have become ever-more sensitive, but provide only upper limits on EDMs, and theory at several scales is crucial to interpret these limits. In this talk, I will provide an overview of EDM experiments in atom and molecules in both the paramagnetic and diamagnetic sectors.