

DNP10-2010-020245

Abstract for an Invited Paper
for the DNP10 Meeting of
the American Physical Society

Search for a permanent electric dipole moment of mercury atoms

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Experimental searches for permanent electric dipole moments (EDMs) provide extremely sensitive probes for physics beyond the standard model. The three main classes of EDM searches are: measurements on bare neutrons; measurements on paramagnetic atoms or molecules, mainly sensitive to the electron EDM; and measurements on diamagnetic atoms, mainly sensitive to CP-violating interactions between nucleons. The most sensitive diamagnetic experiment is performed on Hg-199 atoms at the University of Washington in Seattle. A four vapor-cell measurement of the Hg EDM was recently completed, resulting in an upper bound $|d(\text{Hg})| < 3.1 \times 10^{-29}$ e cm, a factor of seven improvement on the previous limit. Details on the experimental technique and results will be given, along with theoretical implications of the new limit, and prospects for improvement.