

University of Notre Dame
College of Science
Department of Physics

COLLOQUIUM

Discovering or ruling out an electric dipole moment of the electron a factor of 100 smaller than the present limit

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(Refreshments at 3:30 p.m. NSH 202)

Discovering an electric dipole moment (EDM) of the electron or any other fundamental particle would demonstrate the presence of a new source of CP (symmetry) violation and the likely existence of undiscovered massive particles, consistent with supersymmetry (SUSY). But the experimental bounds on the EDMs are already two orders of magnitude below predictions of some SUSY models. Observing no EDM after lowering the experimental bounds by a factor of 100 or more, would constrain SUSY models and jeopardize desirable features.

But with each lowering, the experiments have become more difficult: there has been no improvement in the electron EDM limit in nearly 10 years and no order-of-magnitude improvements in 20 years. As a party to the last order of magnitude improvement, I will describe the problems, the proposed solutions, the R&D we are doing, and the prospects for discovering or ruling out an electron EDM as small as a factor of 100 below the present limit.

Host: Jonathan Sapirstein

ALL INTERESTED PERSONS ARE CORDIALLY INVITED TO ATTEND