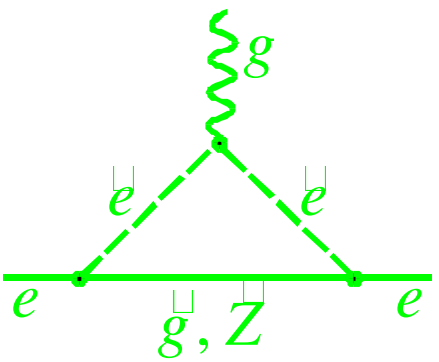
CP Violation in Atomic Physics

CP violation or equivalently T violation causes a permanent electric dipole moment (EDM) of the electron.
The EDM results from radiative corrections in the weak interaction or from supersymmetrie extensions of the Standard Model.

One observes the linear Stark effect of a neutral paramagnetic atom in an external field.
Relativistic effects are of crucial importance.

System: Tl, $Z = 81$ **enhancement factor:** $R = 585$

Limits: $d_e = (1.8 \pm 1.2 \pm 1.0) \times 10^{-27}$ e cm

Prediction of SUSY models and multi-Higgs models

$d \approx 10^{-26} - 10^{-28}$ e cm