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# Lepton-nucleon interactions in the A2HDM

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We present a discussion of effective CP-violating interactions of electrons with nucleons emerging from a heavy scalar sector linearly realized. In particular, we investigate the aligned 2HDM in the decoupling limit. This model which contains sources of CP-violation that, after integrating out the heavy scalars, generate 4-fermion operators.
There are operators involving both a lepton current and a light quark current ($u$, $d$ and $s$ quarks), which have a non-zero matrix element with the nucleon. There are also operators involving heavy quark currents ($c$, $b$ and $t$ quarks), which match at 1-loop level into dimension-7 lepton-gluon operators.
Some of these effective interactions are also relevant for the determination of the 'effective' Electric Dipole Moment (EDM) of the electron, an experimental observable which is both sensitive to the intrinsic EDM of the electron and electron-nucleon interactions.

## Abstract

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