Higgs mechanism with non-parallel vacuum and physical field
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Mexico — Spontaneous symmetry breaking of scalar potentials provide degenerate
vacuum configurations of fields. We investigate the Higgs mechanism in gauge the-
ories with a non-alligned physical field with the vacuum. We calculate the effective
potential with corrections to first order in the coupling constant of a renormal-
izable fourth-power scalar potential, including a derived third-power contribution.
We find that these non- alligned configurations are possible for potentials with non-
zero second-power term. We discuss applications of this mechanism in standard-
model extensions that provide CP- violating phase generation, and restrictions on
the mass of the Higgs particle.

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