

## Symmetry Breaking Through Higgs Mechanism in SU(6) GUT

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### Abstrak

We impose the Higgs mechanism to break the Grand Unified Theory based on SU(6) symmetry, SU(6) GUT. We investigate and search for the Higgs multiplets which are appropriate to generate masses for both fermions and gauge bosons. We have found that the most minimal Higgs multiplets are  $\langle 15 \rangle$ ,  $\langle 20 \rangle$  and  $\langle 21 \rangle$  to realize three steps of symmetry breaking in SU(6) GUT down to the standar SU(2)  $\times$  U(1) model. However within this minimal SU(6) GUT, we can reproduce only some fermions spectra as  $N_{4e}$ ,  $e$ ,  $N_{6e}$ ,  $N_e$  and  $d$  quarks, although we have deployed the most general forms of Higgs multiplets. On the other hand, the present approach have succeeded in generating the regular gauge bosons,  $W_{\pm}$ ,  $Z_0$  and  $A_{\mu}$ .