Scalars 2015

Contribution ID : 155

Flavon-induced Higgs lepton flavour violations

Content :

The current experimental limit on Charge Lepton Flavour Violating (CLFV) processes allows the branching ratios of $h \to \tau \mu$ and $h \to \tau e$ processes to be of order 10%. Since such CLFV processes are forbidden in the Standard Model (SM), we aim to explain these processes by employing the Froggatt-Nielsen mechanism. This mechanism requires the addition of a scalar field called the flavon, singlet under SM gauge group which breaks spontaneously due to the flavon field acquiring a Vacuum Expectation Value (VEV). We show that the observed CLFV branching ratios can be explained due to the flavon filed mixing with the Higgs boson passing all experimental bounds.

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Session classification : --not yet classified--

Track classification : --not yet classified--

Type : --not specified--