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Authors:	Meenakshi (/jspui/browse?type=author&value=Meenakshi)
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Abstract:	This thesis deals with one-loop Renormalization Group Equations(RGEs) for the Standard Model and Beyond the Standard Model. Among the SM couplings, the quartic coupling goes to negative before the Planck scale which unbound the Higgs potential at higher field values. This makes the present Higgs vacuum metastable and gives an indication of Physics beyond the Standard Model. Thus, we have worked on extending the SM via Clock-Work(CW) fermions and analyzed their effects on the SM RGEs. We found that adding CW fermions can stabilize the Higgs potential by breaking the asymptotic freedom of g 2 and g 3 couplings and contributing more positively to the g 1 coupling, leading to faster decay of Top-Yukawa coupling. Also, we have shown that one can unify the gauge couplings by CW extension keeping the perturbation theory valid till the Planck Scale.
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