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## New Regions in the NMSSM with a 125 GeV Higgs

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It is pointed out that mixing effects in the CP-even scalar sector of the NMSSM can give 6-8 GeV correction to the SM-like Higgs mass in moderate or large  $\tan\beta$  regions with a small value of the singlet-higgs-higgs superfields coupling  $\lambda \sim \mathcal{O}(0.1)$ . This effect comes mainly from the mixing of the SM-like Higgs with lighter singlet. In the same parameter range, the mixing of the heavy doublet Higgs with the singlet may strongly modify the couplings of the singlet-like and the 125 GeV scalars. Firstly, the LEP bounds on a light singlet can be evaded for a large range of its masses. Secondly, the decay rates of both scalars can show a variety of interesting patterns, depending on the lightest scalar mass. In particular, a striking signature of this mechanism can be a light scalar with strongly suppressed (enhanced) branching ratios to  $b\bar{b}$  ( $gg$ ,  $c\bar{c}$ ,  $\gamma\gamma$ ) as compared to the SM Higgs with the same mass. The  $\gamma\gamma$  decay channel is particularly promising for the search of such a scalar at the LHC. The 125 GeV scalar can, thus, be accommodated with substantially smaller than in the MSSM radiative corrections from the stop loops (and consequently, with lighter stops) also for moderate or large  $\tan\beta$ , with the mixing effects replacing the standard NMSSM mechanism of increasing the tree level Higgs mass in the low  $\tan\beta$  and large  $\lambda$  regime, and with clear experimental signatures of such a mechanism.

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