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Particle Physics at LPTHE

Vendredi 26 Juillet 2019, 14 :00
LPTHE, library
Domaines : hep-ph

Titre : *Electroweak corrections to the fermionic decays of heavy Higgs states*

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Résumé : *Extensions of the Standard Model often come with additional, possibly electroweakly charged Higgs states, the prototypal example being the Two-Higgs-Doublet Model. While collider phenomenology does not exclude the possibility for some of these new scalar fields to be light, it is relatively natural to consider masses in the multi-TeV range, where decoupling of the SM-like boson is almost guaranteed. The appearance of a hierarchy between the new-physics states and the electroweak scale then leads to sizable electroweak corrections in e.g. the decays of the heavy Higgs, which are dominated by effects of infrared type, namely Sudakov logarithms. Such radiative contributions obviously affect the two-body decays, but should also be paired with the radiation of electroweak (or lighter Higgs) bosons for a consistent picture at the one-loop order. Resummation of the leading terms is also relatively easy to achieve. We re-visit these questions in the specific case of the fermionic decays of heavy Higgs particles in the Next-to-Minimal Supersymmetric Standard Model, in particular pointing out the consequences of the three-body final states for the branching ratios of the heavy scalars.*