Contribution ID: **221** Type: **not specified**

New constraints on extended Higgs sectors from the trilinear Higgs coupling

Thursday 29 September 2022 14:00 (15 minutes)

The trilinear Higgs coupling λ_{hhh} is a crucial tool to access the structure of the Higgs potential and probe possible effects of physics beyond the Standard Model (SM). Focusing on the Two-Higgs-Doublet Model as a concrete example, I will discuss the calculation of the leading two-loop corrections to λ_{hhh}, and show that this coupling can be significantly enhanced with respect to its SM prediction in certain regions of parameter space. Taking into account all relevant corrections up to the two-loop level, I will demonstrate that the current experimental bounds on λ_{hhh} already rule out significant parts of the parameter space that would otherwise be unconstrained. Finally, I will present a benchmark scenario illustrating the interpretation of the current results and future measurement prospects for λ_{hhh}.

Summary

Primary authors: BAHL, Henning; BRAATHEN, Johannes (T (Phenomenology)); WEIGLEIN, Georg (T (Phenomenology))

Presenter: BRAATHEN, Johannes (T (Phenomenology))

Session Classification: Parallel Session Thursday

Track Classification: Particle Phenomenology