



Contribution ID: 19

Type: Oral presentation using Zoom

Two-loop corrections to the Higgs trilinear coupling in classically scale-invariant BSM models

Thursday, 28 October 2021 19:00 (20 minutes)

The Higgs trilinear coupling provides a unique probe to investigate the structure of the Higgs sector and the nature of the electroweak phase transition, and to search for indirect signs of New Physics. Meanwhile, classical scale invariance (CSI) is an attractive idea for BSM model building, which can explain the apparent alignment of the Higgs sector and potentially relate to the hierarchy problem. A particularly interesting feature of models with CSI is that the Higgs trilinear coupling is, at one loop, universally predicted to deviate by 67% from the (tree-level) SM prediction.

In this talk, I will discuss how this result is modified at two loops. I will present results from the first explicit computation of two-loop corrections to the Higgs trilinear coupling in classically scale-invariant BSM models. Taking as example a CSI variant of a Two-Higgs-Doublet Model, I will show that the inclusion of two-loop effects allows distinguishing different scenarios with CSI, although the requirement of correctly reproducing the known 125-GeV mass of the Higgs boson severely restricts the allowed values of the Higgs trilinear coupling.

1st preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

2nd preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

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Session Classification: F-4: Higgs properties

Track Classification: Parallel sessions: Topical Groups: Session F: Higgs properties