Contribution ID: **14** Type: **not specified**

Di-Higgs with missing transverse momentum at FCC-hh

Friday 8 October 2021 11:35 (15 minutes)

The determination of the Higgs self-coupling from di-Higgs events is one of the clearest benchmarks for the FCC-hh. Its potential has been well established already in several final states. In this talk studies into final states of the di-Higgs system which involve neutrinos are presented. The inclusion of additional final states will help to improve the precision of the self-coupling measurement even further, and specifically neutrino channels will help to shed light on an experimental aspect for the FCC-hh which has not been well investigated yet: a robust reconstruction of the missing transverse momentum (ETMiss) is crucial for such analyses. It is is clear that ETMiss reconstruction at the FCC-hh will be extremely challenging due to the high pile-up enviroment, with the average interactions per bunch crossing expected to be of the order of 1000. First investigations into possible final states, their event selections and potential are presented, which in future can then be used to derive benchmark scenarios for the ETMiss reconstruction performance.

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Session Classification: Physics Session

Track Classification: Physics Track