Contribution ID: **240** Type: **Parallel**

Higgs precision at FCC-hh

Friday 11 July 2025 09:30 (20 minutes)

The FCC-hh, operating at a centre-of-mass energy of 84 TeV, will produce unprecedentedly large samples of single and double Higgs bosons, enabling detailed studies of rare decays and precise measurements of the Higgs self-coupling. With billions of single-Higgs events, FCC-hh will measure rare decays such as H→μμ, H→γγ, and H→Zγ with percent-level precision. It will also significantly enhance sensitivity to invisible decays, reaching branching fractions as low as 10^{-4}. It will also probe to top Yukawa interaction with unprecedented precision via the ttH production mechanism. Furthermore, with tens of millions of Higgs pairs events, the FCC-hh will precisely determine the Higgs self-coupling, crucial for understanding electroweak symmetry breaking and vacuum stability, with an expected precision at the few-percent level. These measurements will provide complementary information to FCC-ee and test the Higgs sector to unprecedented accuracy.

Secondary track

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Session Classification: T08

Track Classification: T08 - Higgs Physics