



New version of the paper on the double Higgs analysis



- ▶ Extensive review by the journal referees (EPJC): currently again with referees
- ▶ New version on the arXiv: <https://arxiv.org/abs/1901.05897v3>

Biggest changes

- ▶ Updated assumptions on the ZHH analysis (no full sim study) at 1.4 TeV in terms of signal efficiency and Signal/Background ratio
 - ▶ now extrapolated based on ILC thesis by C. Dührig ([link](#)) and new CLICdp study by M. Weber ([link](#))
 - ▶ compared several options; realistic baseline chosen
- changed results for $\sigma(\text{ZHH})$ measurement and 1.4 TeV self-coupling limits; small change to the combined 1.4 TeV+3 TeV self-coupling limits
- ▶ Study of the impact of $Z(\rightarrow \nu\bar{\nu})\text{HH}$ in the $\text{HH}\nu\bar{\nu}$ final state and the influence of polarisation on its contribution

Updated results:

Measurement	1.4 TeV	3 TeV
$\sigma(\text{HH}\nu\bar{\nu})$	3.5 σ EVIDENCE $\frac{\Delta\sigma}{\sigma} = 28\%$	> 5 σ OBSERVATION $\frac{\Delta\sigma}{\sigma} = 7.3\%$
$\sigma(\text{ZHH})$	2.1 σ	2.4 σ
$g_{\text{HHH}}/g_{\text{HHH}}^{\text{SM}}$	1.4 TeV: -29 %, +67 % rate-only analysis	1.4 TeV + 3 TeV: -8 %, +11 % differential analysis at 3 TeV

3 TeV result for $\sigma(\text{ZHH})$ from CLICdp-Note-2020-003; all other results from <https://arxiv.org/abs/1901.05897v3>