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Precision studies at FCC-hh with diboson production.

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Diboson production processes constitute an interesting probe of New Physics related to the Higgs boson and the EW sector. We study the $\not{W}h$ and $\not{Z}h$ production processes, with leptonically decaying gauge bosons and both $h \to b\bar{b}$ and $h \to \gamma\gamma$ decay channels. We study these processes in the SMEFT framework and derive bounds on six dimension-6 operators. The possibility of using the $h \to \gamma\gamma$ decay channel is exclusive to FCC-hh and is an example of new processes made available on this collider. On the other hand, the $h \to b\bar{b}$ channel is already available at LHC and offers a direct comparison between hadron colliders. We compare the reach and features of each channel at FCC-hh. Finally, we analyse and stress the complementarity of these measurements with EW precision measurements to be carried out at FCC-ee. Based on arXiv: 2004.06122, 2011.13941, and 2208.11134.

Primary author: ROSSIA, Alejo Nahuel (University of Manchester)

Co-authors: GROJEAN, Christophe (DESY (Hamburg) and Humboldt University (Berlin)); BISHARA, Fady (DESY); PANICO, Giuliano (University of Florence and INFN Florence); DELLE ROSE, Luigi (IFAE); MONTULL GARCIA, Marc (Deutsches Elektronen-Synchrotron DESY); ENGLERT, Philipp (DESY Hamburg); DE CURTIS, Stefania (Universita e INFN, Firenze (IT))

Presenter: ROSSIA, Alejo Nahuel (University of Manchester)

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