Contribution ID: **120**   Type: **not specified**

HiggsTools: a toolbox for BSM scalar phenomenology

Tuesday 23 November 2021 11:20 (20 minutes)

The codes HiggsBounds and HiggsSignals compare model predictions of BSM models with extended scalar sectors to searches for additional scalars and measurements to the 125GeV Higgs boson. We present a unification and extension of the functionalities provided by both codes into the new HiggsTools framework. The codes have been re-written in modern C++ with a native python interface for easy interactive use. We discuss the user interface for providing model predictions, now part of the new sub-library HiggsPredictions, which also provides access to many tabulated cross sections and BRs in reference models such as the SM. Higgs-Bounds now implements experimental limits purely through json data files and can better handle clusters of BSM particles of similar mass, even for complicated search topologies. In HiggsSignals, the treatment of different types of measurements has been unified, both in the $\chi 2$ computation and in the data file format used to implement experimental results.

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Session Classification: Higgs, Flavour and Precision

Track Classification: Higgs and colliders