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The global SMEFT fit at e+e- Higgs factories: What is the role of each measurement?

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The SMEFT provides a scientifically sound framework for studying the Higgs boson properties at future e+e- colliders. All the Higgs couplings can be determined in a nearly model-independent way. One very nice feature about the SMEFT formalism is that the Higgs couplings are related to not only themselves but also to W and Z couplings, guided by the SU(2)xU(1) gauge symmetries. On the other hand, since a large number of experimental observables, from LHC, LEP/SLC and future e+e-, are needed to determine the Higgs couplings in a global fit, it becomes non-trivial to understand quantitatively how the precision of each coupling or D-6 operator is affected by which of the input measurements. Remarkably, it is found that there exists an analytic way of understanding these questions. This talk will introduce this new study and provide formulas that assess the roles of different observables. The synergy between measurements at future e+e-, HL-LHC and Z-pole, as well as the role of beam polarizations, will be emphasized.

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