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Effective Higgs Couplings Extraction in the 4 lepton channel at the LHC: surprises and prospects

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Kinematic distributions in Higgs decays to four charged leptons, the so called "golden channel", are a powerful probe of the tensor structure of its couplings to neutral electroweak gauge bosons. We discuss a comprehensive analysis framework designed to perform direct extraction of the all possible Higgs couplings. In this framework we study the sensitivity of the four lepton final state, to higher dimensional loop-induced couplings of the Higgs boson to ZZ, Zγ, and γγ, allowing for general CP mixtures. We present the results of these studies and the impact on handles for studying CP violation in the Higgs sector.

Summary

Primary author(s) : Mr. CHEN, Yi (Caltech)

Co-author(s) : Dr. LYKKEN, Joe (FNAL); Prof. SPIROPULU, Maria (Caltech); Dr. VEGA-MORALES, Roberto (LPT Orsay)

Presenter(s) : Mr. CHEN, Yi (Caltech)

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