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Chasing the Higgs shape at HL-LHC

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The Higgs boson may well be a composite scalar with a finite extension in space. Owing to the momentum dependence of its couplings the imprints of such a composite pseudo Goldstone Higgs may show up in the tails of various kinematic distributions at the LHC, distinguishing it from an elementary state. From the bottom up we construct the momentum dependent form factors to capture the interactions of the composite Higgs boson with the weak gauge bosons. We demonstrate their impact in the differential distributions of various kinematic parameters for the $pp \rightarrow ZH \rightarrow llbb$ channel. We show that this channel can provide an important avenue to probe the Higgs' substructure at the HL-LHC.

Primary author: RAY, Tirtha Sankar (IIT Kharagpur, India)

Presenter: RAY, Tirtha Sankar (IIT Kharagpur, India)

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