

Exploring SMEFT in VH channel with Machine Learning

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We use Machine Learning(ML) techniques to exploit kinematic information in VH, the production of a Higgs in association with a massive vector boson. We parametrize the effect of new physics in terms of the SMEFT framework. We find that the use of a shallow neural network allows us to dramatically increase the sensitivity to deviations in VH respect to previous estimates. We also discuss the relation between the usual measures of performance in Machine Learning, such as AUC or accuracy, with the more adept measure of Asimov significance. This relation is particularly relevant when parametrizing systematic uncertainties. Our results show the potential of incorporating Machine Learning techniques to the SMEFT studies using the current datasets.

Preferred contribution length

30 minutes

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