

Seperation of H to ZZ to 4l from the SM ZZ to 4l background

The standard model production of a ZZ diboson is considered an irriducible background to the potential production of H to ZZ. Considering the 4 lepton final state I have in my work investigated if a seperation between the two could be obtained using mass independent distributions.

While the Higgs boson is produced mainly from gluon fusion and has zero spin, the standard model ZZ diboson system is produced mainly from qqbar and thus with spin one, resulting in differences in the rapidity and angular distributions.

The result of a multivariate analysis trained on Monte Carlo simulations will be presented

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