

Operators Correlation in Electroweak Scattering at LHC

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To probe new physics without prior assumptions on UV models, the correlation of operators could be crucial in exposing the structure of UV completion.

When operators arise from the same heavy resonance, they are likely to correlate and their Wilson coefficients exhibit non-trivial relation, since both of them depend on the same UV parameters.

The aim of EFT analysis is to discover the correlation among operators, which might shed lights on UV completion.

For specific, if a precise measurement is consistent with the SM theory prediction, it might originate from a coherent cancellation among higher dimensional operators.

In this work, we investigate a strongly correlated cancellation of operators in electroweak scattering and attempt to expose the corresponding UV structure.

We also examine the operators correlation through a coupled channel analysis method and demonstrate that this correlation persists even when considering the uncertainties at HL-LHC.

On the other hand, since the operators connect different scattering channels through the reduction of H into v or h , the operators correlation in single top production will predict the total cross section of thq production, and the correlation in $pp \rightarrow h\gamma$ can precisely examine the new physics effects of the indirect search on the weak magnetic moment a_W .

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