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Non-factorizable corrections to Higgs production in Vector Boson Fusion: Beyond Eikonal

Thursday, 30 November 2023 10:00 (15 minutes)

Higgs production in Vector Boson Fusion (VBF) has the second largest cross section at the LHC. Its signature on collider is characterized by two energetic jets in the forward region. The previous high-order corrections to VBF Higgs production usually neglect the non-factorizable contribution which is color suppressed compared to its factorizable counterpart. It was however found in the leading eikonal approximation that the non-factorizable contribution had an enhancement by a factor π^2 . To have a better understanding of non-factorizable corrections to VBF Higgs production, it is desirable to go beyond leading eikonal approximation. In this talk, I will show how to expand the two-loop five-point VBF amplitude in the eikonal limit and obtain the first power correction. A compact integral representation will be presented. With suitable arguments, only logarithmic and dilogarithmic functions are enough to express the amplitude. The new sub-leading contribution will change the current estimate of the non-factorizable corrections to VBF cross section by about 20 percent.

You are

non-PhD student

Primary author: LONG, Ming-Ming (KIT)

Presenter: LONG, Ming-Ming (KIT)

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