



Contribution ID: 359

Type: parallel talk

Mass Dependence of Higgs Production at Large Transverse Momentum

Monday, May 8, 2017 5:45 PM (15 minutes)

The transverse momentum distribution of the Higgs at large P_T is complicated by its dependence on three important energy scales: P_T , the top quark mass m_t , and the Higgs mass m_H . A strategy for simplifying the calculation of the cross section at large P_T is to calculate only the leading terms in its expansion in m_t^2/P_T^2 and/or m_H^2/P_T^2 . The expansion of the cross section in inverse powers of P_T is complicated by logarithms of P_T and by mass singularities. In this paper, we consider the top-quark loop contribution to the subprocess $q\bar{q} \rightarrow H + g$ at leading order in α_s . We show that the leading power of $1/P_T^2$ can be expressed in the form of a factorization formula that separates the large scale P_T from the scale of the masses. All the dependence on m_t and m_H can be factorized into a distribution amplitude for $t\bar{t}$ in the Higgs, a distribution amplitude for $t\bar{t}$ in a real gluon, and an endpoint contribution. The factorization formula can be used to simplify calculations of the P_T distribution at large P_T to next-to-leading order in α_s .

Summary

Primary authors: BRAATEN, Eric (Ohio State University); ZHANG, Hong; Dr ZHANG, Jia-wei (Chongqing University of Science and Technology)

Presenter: ZHANG, Hong

Session Classification: BSM Higgs I