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## Higgs boson production in the high-energy limit of pQCD

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With the advent of TeV-energy colliding machines, such as the Large Hadron Collider (LHC), the possibility has opened up to test predictions of Quantum Chromodynamics (QCD) and, more in general, of the Standard Model (SM), in new, and so far unexplored, kinematical regimes. Among the many reactions that can be investigated at LHC, the Higgs production is one of the most important and challenging for the entire high-energy physics Community. Beside usual studies in the Higgs sector, it has recently been highlighted how differential Higgs distributions can be effectively used as "stabilizers" of the high-energy dynamics of QCD. The definition and the study of observables sensitive to high-energy dynamics in Higgs production has the double advantage of (i) allowing us to clearly disentangle the high-energy dynamics from the fixed-order one and (ii) providing us with an auxiliary tool to extend Higgs studies in wider kinematical regimes. In this talk, I will show how a general hybrid collinear/high energy factorization can be built up for the inclusive production of a Higgs in association with a jet. Then, I will present some phenomenological analyses that corroborate the underlying assumption that this reaction can be used to investigate the semi-hard regime

of QCD. Finally, I will focus on more formal developments, such as the inclusion of subleading corrections to previous studies, via the calculation of the forward next-to-leading order Higgs impact factor.

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