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Jet counting and QCD scaling patterns

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The properties of multi-jet events impact many LHC analysis. The exclusive number of jets at hadron colliders can be described in terms of two simple patterns: staircase and Poisson scaling. We use the generating functional formalism at LL/NLL to describe multi-jet rates. We derive formally under which circumstances we expect either of the both scaling patterns. In photon plus jets production we can interpolate between the two patterns using simple kinematic cuts. The associated theoretical errors are well under control. Understanding such exclusive jet multiplicities significantly impacts Higgs searches and searches for supersymmetry at the LHC.

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