

Photon production @ the LHC with realistic photon isolation

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The production of a photon is a classical hadron collider observable. In the experimental measurements of the corresponding cross section a photon isolation is imposed to eliminate the large background of photons originating from hadronic decays. The isolation condition used in current experimental analyses is the so called fixed cone isolation, limiting the hadronic energy inside a cone around the photon direction to a certain threshold value. However, for the theoretical parton-level calculation this isolation criterion is challenging, allowing singular configurations in which partons become collinear to the photon. To avoid these singular configurations the current state of the art predictions for the cross section use idealised photon isolation conditions, which, however, mimic the experimental isolation only to a limited extent. In my talk I am giving an introduction to the antenna subtraction formalism, which we use to derive higher order QCD corrections to cross sections and present necessary modifications of this formalism to derive predictions for the photon production cross section with a realistic photon isolation.