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Prompt photon production and photon-jet correlations with POWHEG

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Photon production, also in association with jets, is an important probe of the quark gluon plasma. For many decades, theoretical predictions of prompt photon production have been based on next-to-leading order (NLO) calculations. We present a recalculation of this process at NLO and combine it with parton showers (PS) in the POWHEG framework. This allows for the first time full NLO+PS simulations, including also hadronisation and detector effects. Of particular phenomenological importance are the induced modifications of the transverse-momentum balance and azimuthal angle asymmetry between the photon and recoiling jet, present now already in pp and not only in AA collisions.

Experimental Collaboration

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