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Fully differential decay rate of a standard model Higgs boson into a b-quark pair at NNLO accuracy

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We compute the fully differential decay rate of the standard model Higgs boson to a b-quark pair at NNLO accuracy. We use a general subtraction scheme developed for computing QCD jet cross sections in perturbation theory. The double real and real-virtual contributions to the second order radiative corrections, regularized by subtractions, are finite in four space-time dimensions and their contribution to the decay rate can be computed with any jet function defined in four dimensions. We also demonstrate the finiteness of the regularized double virtual correction analytically. We present the differential decay rate into b-jets as a function of the jet resolution parameter for the JADE and Durham clustering algorithms.

additional information

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