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Evolution kernels of twist-two operators

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The evolution kernels that govern the scale dependence of the generalized parton distributions are invariant under transformations of the SL(2, R)

collinear subgroup of the conformal group. Beyond one loop the symmetry generators, due to quantum effects, differ from the canonical ones. We construct the transformation that brings the full symmetry generators back to their canonical form and show that the eigenvalues (anomalous dimensions) of the new, canonically invariant, evolution kernel coincide with the so-called parity respecting anomalous dimensions. We develop an efficient method that allows one to restore an invariant kernel from the corresponding anomalous dimensions. As an example, the explicit expressions for next-to-next-to-leading order invariant kernels for the twist-two flavor-nonsinglet operators in QCD and for the planar part of the universal anomalous dimension in N = 4 supersymmetric Yang-Mills are presented.

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