

## Reconstruction of non-analytic functions

*mercredi 16 mai 2012 15:35 (25 minutes)*

With the help of the Mellin-Barnes transform, we show how to simultaneously resum the expansion of any kind of non-analytic functions around 0, 1 and *infinity* in a systematic way. We exemplify the method for the perturbative vector, axial scalar and pseudo-scalar correlator at  $\mathcal{O}(\alpha_s^3)$ . We show that the coefficients,  $\Omega(n)$ , of the Taylor expansion of the vacuum polarization function in terms of the conformal variable  $\omega$  admit, for large  $n$ , an expansion in powers of  $1/n$  (up to logarithms of  $n$ ) that we can calculate exactly. This large- $n$  expansion has a sign-alternating component given by the logarithms of the OPE, and a fixed-sign component given by the logarithms of the threshold expansion in the external momentum  $q^2$ .

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**Classification de Session:** QCD (dans tous ses états)