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Massless Propagators and Multiloop QCD: new results

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We discuss the current status of the ongoing analytical calculation of the QCD beta-function in 5 loops as well as some new results in investigating CBK (Crewther-Brodhurst-Kataev) relation in QCD. The latter include the evaluation of the new singlet type contribution to the Bjorken sum rule (first considered by Larin) which appears first at 4-loop level only. We will also report on the calculation of the gluino dependent terms to the same sum rule (this will allow to check some non-trivial predictions of the β-expansion method (Kataev and Mikhailov, 2014) and, thus, improve our understanding of the corresponding optimization procedure.

Author: CHETYRKIN, Konstantin (Karlsruhe Institute of Technology)

Presenter: CHETYRKIN, Konstantin (Karlsruhe Institute of Technology)

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