

# Renormalization of the flavor-singlet axial-vector current and its anomaly in dimensional regularization

*Thursday, August 11, 2022 2:30 PM (15 minutes)*

The renormalization constant of the flavor-singlet axial-vector current operator with a non-anticommuting  $\gamma_5$  in dimensional regularization is determined to order  $\alpha_s^5$  in QCD with massless quarks. The result is obtained from a four-loop calculation by the virtue of a formula derived using the Adler-Bell-Jackiw equation in terms of renormalized operators. A possible application of this result for resumming the non-decoupling mass logarithms in the axial quark form factors will be discussed.

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**Session Classification:** Parallel Session IX (2): Hadron and Flavor Physics

**Track Classification:** 强子物理与味物理