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Numerical determination of the Λ-parameter in SU(3) gauge theory from the twisted gradient flow coupling

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We calculate the Λ-parameter in $\overline{\rm MS}$ scheme for SU(3) pure gauge theory with the twisted gradient flow method non-perturbatively. Using the Schrödinger functional scheme as an intermediate scheme, we numerically evaluate the Λ-parameter ratio $\frac{\Lambda_{\overline{\rm MS}}}{\Lambda_{\rm TGF}} = \frac{\Lambda_{\overline{\rm MS}}}{\Lambda_{\rm SF}} \cdot \frac{\Lambda_{\rm SF}}{\Lambda_{\rm TGF}}$. We also estimate $\Lambda_{\rm TGF}/\sqrt{\sigma}$ and $r_0\Lambda_{\rm TGF}$ from $a\sqrt{\sigma}$ and a/r_0 available in the literature. Our final values $\Lambda_{\overline{\rm MS}}/\sqrt{\sigma}$ and $r_0\Lambda_{\overline{\rm MS}}$ are consistent with the known results, which demonstrates the validity of the present method.

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