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Scale setting of $SU(N)$ Yang–Mills theories via Twisted Gradient Flow

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We present preliminary results for the scale setting of $SU(N)$ Yang–Mills theories using twisted boundary conditions and the gradient-flow scale $\sqrt{t_0}$. The end goal of this study is to determine the $SU(N)$ Λ -parameter through the step-scaling method. The scale $\sqrt{t_0}$, being defined from the flowed action density of the gauge fields, is correlated with their topological charge and thus could be affected by topological freezing. We deal with this problem with the Parallel Tempering on Boundary Conditions algorithm, which we found to be effective for the same numerical setup in previous work.

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