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Non-Gaussianity of the topological charge distribution in $SU(3)$ Yang–Mills theory

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We report the results of a study of the distribution of the topological charge of the $SU(3)$ Yang–Mills theory: we estimate the second and fourth cumulant with high precision in order to measure the deviation from the normal distribution. The computation is done on the lattice implementing a naïve discretization of the topological charge evolved with the Yang–Mills gradient flow. A range of high statistics Monte Carlo simulations with different lattice volumes and spacings is used to extrapolate the results to the continuum limit with confidence by keeping finite volume effects negligible with respect to the statistical errors.

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