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QCD Topology to High Temperatures via Improved Reweighting

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At high temperatures, the topological susceptibility of QCD becomes relevant for the properties of axion dark matter. However, the strong suppression of non-zero topological sectors causes ordinary sampling techniques to fail, since fluctuations of the topological charge can only be measured reliably if enough tunneling events between sectors occur. We present an improvement of a technique that we recently developed to circumvent this problem based on a combination of gradient flow and reweighting techniques and quote first results of the topological susceptibility in pure SU(3) Yang-Mills theory up to $7 T_c$.

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