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Euclidean correlation functions of the topological charge density

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We will present first results of our study of the Euclidean topological charge density correlator. In order to get a well defined topological charge density and to improve the signal of the correlators at large distances we make use of the gradient flow.

We investigate the flow-time dependence on large and fine quenched lattices and compare to results of 2+1flavor HISQ lattices. The final goal of this study is to perform a continuum extrapolation for the pure SU(3) plasma, the relevance of the results to full QCD and to extract the related transport coefficient, the sphaleron rate.

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