



Contribution ID: 13

Type: **not specified**

## Topological susceptibility of pure gauge theory using Density of States

*Friday, 23 April 2021 09:45 (25 minutes)*

The topological susceptibility of the  $SU(3)$  pure gauge theory is calculated in the deconfined phase at temperatures up to  $10T_c$ . At such large temperatures the susceptibility is suppressed, topologically non-trivial configurations are extremely rare. Thus, direct lattice simulations are not feasible. The density of states (DoS) method is designed to simulate rare events, we present an application of the DoS method to the problem of high temperature topological susceptibility. We reconstruct the histogram of the charge sectors that one could have obtained in a naive importance sampling. Our findings are perfectly consistent with a free instanton gas.

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