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## Topology and the Dirac spectrum in hot QCD

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It is known that contrary to expectations, the order parameter of chiral symmetry breaking, the Dirac spectral density at zero virtuality, does not vanish above the critical temperature of QCD. Instead, the spectral density develops a pronounced peak at zero. We show that the spectral density in the peak has large violations of the expected volume scaling. This anomalous scaling and the statistics of these eigenmodes is consistent with them being produced by mixing instanton and antiinstanton zero modes. Consequently, we show that a nonvanishing topological susceptibility implies a finite density of eigenvalues around zero, which can have implications on the restoration of chiral symmetry above the critical temperature.

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