

Central Charges and Effective Action at Finite Temperature and Density

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Abstract

The current algebra for gauge theories like QCD at finite temperature and density is studied. We start considering, the massless Thirring model at finite temperature and density, finding an explicit expression for the current algebra. The central charge only depends on the coupling constant and there are not new effects due to temperature and density. From this calculation, we argue how to compute the central charge for QCD4 and we argue why the central charge in four dimensions could be modified by finite temperature and density.