

Abstract Submitted
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Fisher's zeros, complex RG flows and confinement in LGT models YANNICK MEURICE, University of Iowa, ALEXEI BAZAVOV, BNL, ALAN DENBLEYKER, University of Iowa, DAPING DU, University of Illinois, YUZHILIU, University of Iowa, BUGRAHAN OKTAY, University of Utah, DON SINCLAIR, ANL — The zeros of the partition function in the complex beta plane (Fisher's zeros) play an important role in our understanding of phase transitions and RG flows. Recently, it has been argued that they act as gates or separatrices for complex RG flows. Using histogram reweighting to construct the density of states, we calculate the Fisher's zeros for pure gauge SU(2) and U(1) on L^4 lattices. For SU(2), these zeros appear to move almost horizontally when the volume increases. They stay away from the real axis which indicates a confining theory at zero temperature. We discuss the effect of an adjoint term on these results. In contrast, using recent multicanonical simulations for the U(1) model for L up to 8 we find that the imaginary part of the zeros scales as $L^{-3.07}$ and pinches the real axis at beta near 1.0113. Preliminary results concerning higher volumes will be presented. We will also discuss recent results for SU(3) with various numbers of flavors.

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