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On s-confining SUSY-QCD with Anomaly Mediation

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In this work, we present a comprehensive study of the phase diagram of supersymmetric QCD with $N_f = N_c + 1$ flavors perturbed by Anomaly Mediated Supersymmetry Breaking (AMSB). We extend the analysis done before for the s-confining ASQCD theories in three different directions. Previously it was assumed that it is possible to ignore terms proportional to $m_{3/2}^2$ when $m_{3/2}$ is small. We show that this approximation is not valid for the baryon preserving direction since is possible to rescale the potential in such a way as to remove the dependence of $m_{3/2}$. We further expand the analysis of these models by including two and three-loop contributions in order to investigate the robustness of the results. Finally, we include the leading effect of higher order Kähler to investigate the stability of the phase diagram as we approach the confining energy scale.

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