The high density region of QCD in a large mass and chemical potential model

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Abstract: We study the high density region of an effective model obtained from QCD with massive (but not infinitely heavy) quarks. The model still aknowledges the sign problem peculiar to non-zero chemical potential, but it permits the development of algorithms which ensure a good overlap of the true and the Monte Carlo ensemble. We present extensive calculations and study the dependence of various observables on the chemical potential and on the temperature, in particular of the charge density and the diquark susceptibility, which may be used to characterize the various phases expected at high baryonic density.