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## **QCD in the heavy dense regime for large $N_c$ : on the existence of quarkyonic matter**

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During the last years it has become possible to address the cold and dense regime of QCD directly for sufficiently heavy quarks, where combined strong coupling and hopping expansions are convergent and a 3d effective theory can be derived, which allows to control the sign problem either in simulations or by fully analytic calculations. In this contribution we review the effective theory and study the  $N_c$ -dependence of the nuclear liquid gas transition, as well as the equation of state of baryonic matter.

We find the transition to become more strongly first order with growing  $N_c$ , suggesting that in the large  $N_c$  limit its critical endpoint moves to high temperatures to connect with the deconfinement transition. Furthermore, to leading and next-to-leading order in the strong coupling and hopping expansions, respectively, the pressure is found to scale as  $p \sim N_c$ , which is a defining property of quarkyonic matter.

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