No. 14

Chemical Potential Dependence of the Gluon Screening Mass in QC2D

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Collab. in

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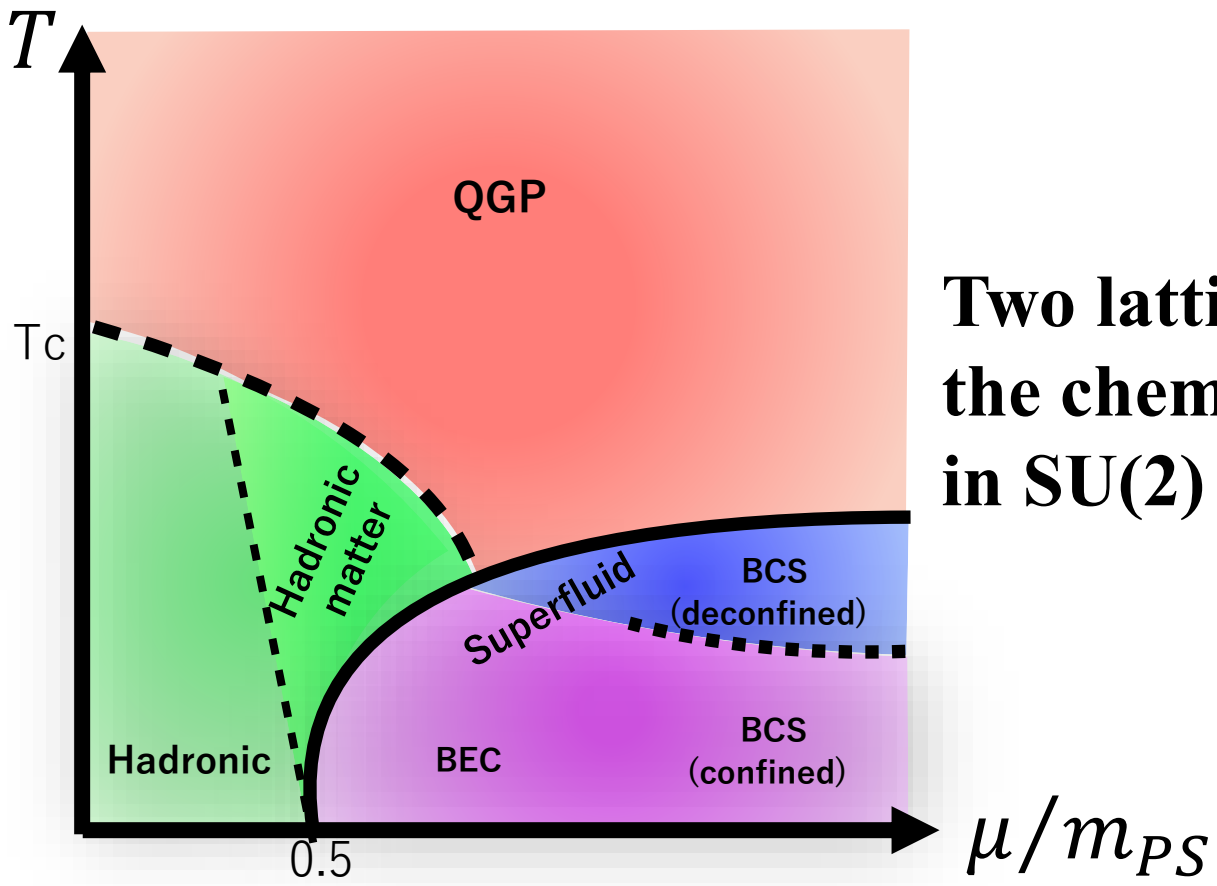
Chemical Potential Dependence of the Gluon Screening Mass in QC$_2$D

Gluon Screening Mass:

- Effective mass of gluon produced by interaction between QCD vacuum.
- Two types of mass: Magnetic (transverse) and Electric (longitudinal).



Two lattice group investigated the chemical potential dependences of the masses in SU(2) color lattice simulation.

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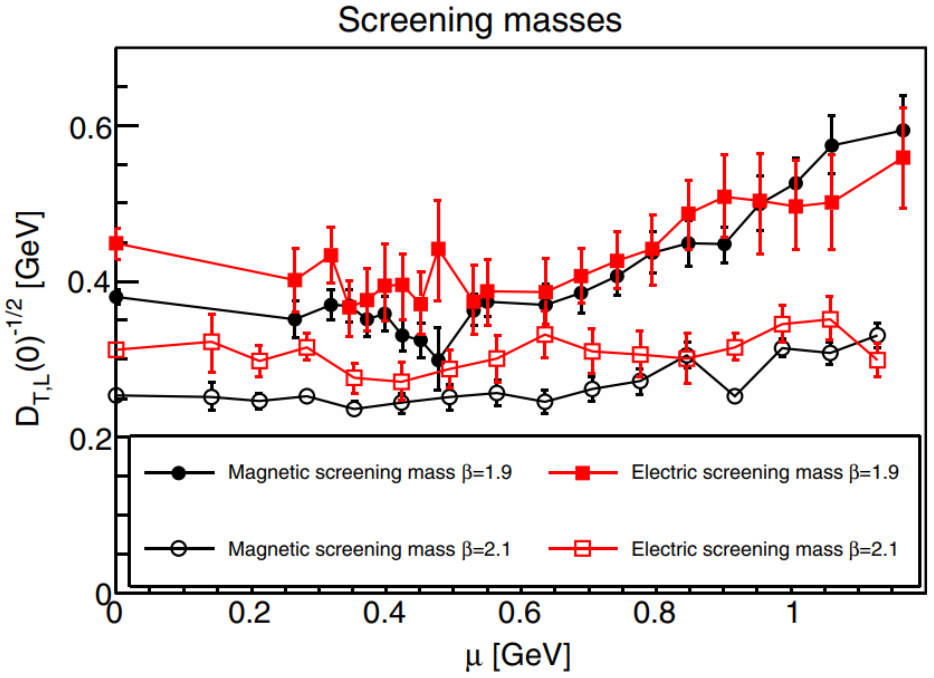
British group ($a \simeq 0.186$ fm, 0.140 fm) :

$V \simeq (2.232\ \text{fm}) \times (4.464\ \text{fm}), (2.24\ \text{fm})^3 \times (4.48\ \text{fm})$.



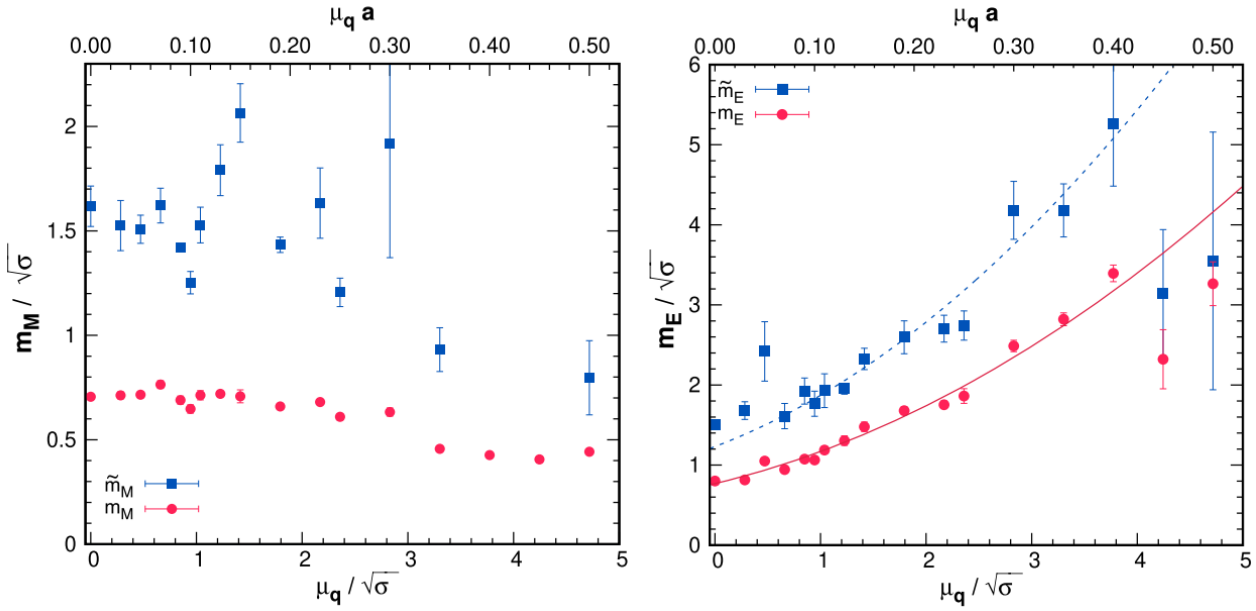
Tamer Boz, Ouraman Hajizadeh, Axel Maas, and Jon-Ivar Skullerud, Phys. Rev. D **99**, 074514(2019)

Magnetic mass: independent of μ.

Electric mass: **independent of μ.**

Russian group ($a \simeq 0.044$ fm) :

$V \simeq (1.408\ \text{fm})^3 \times (1.408\ \text{fm})$.



V. G. Bornyakov, V. V. Braguta, A. A. Nikolaev, R. N. Rogalyov, Phys. Rev. D **102**, 114511 (2020)

Magnetic mass (Left): Independent of μ.

Electric mass (Right): ***Increase* with μ.**

Why they are inconsistent?

The answer is in No.14.