Contribution ID: **825** Type: **Oral presentation**

Heavy-Light Susceptibilities in a Strongly Coupled Quark-Gluon Plasma

Wednesday 6 April 2022 15:20 (20 minutes)

Quark number susceptibilities as computed in lattice QCD are commonly believed to provide insights into the microscopic structure of QCD matter, in particular its degrees of freedom. We generalize a previously constructed partonic T-matrix approach to finite chemical potential to calculate various susceptibilities, in particular for configurations containing a heavy charm quark. At vanishing chemical potential and moderate temperatures, this approach predicts large collisional widths of partons generated by dynamically formed hadronic resonance states which lead to transport parameters characteristic for a strongly coupled system. The quark chemical potential dependence is implemented into the propagators and the in-medium color potential, where two newly introduced parameters for the thermal and screening masses are fixed through a fit to the baryon number susceptibility, χ_2^B. With this setup, we calculate heavy-light susceptibilities without further tuning; the results qualitatively agree with the lattice-QCD (lQCD) data for both χ_{11}^{uc} and χ_{22}^{uc}. This implies that the lQCD results are compatible with a significant content of broad D-meson and charm-light diquark bound states in a moderately hot QGP.

Reference:
Shuai Y.F. Liu, Ralf Rapp, arXiv:2111.13620

Authors: LIU, Shuai (Hunan University); RAPP, Ralf

Presenter: LIU, Shuai (Hunan University)

Session Classification: Parallel Session T08: Strongly coupled systems

Track Classification: Strongly coupled systems