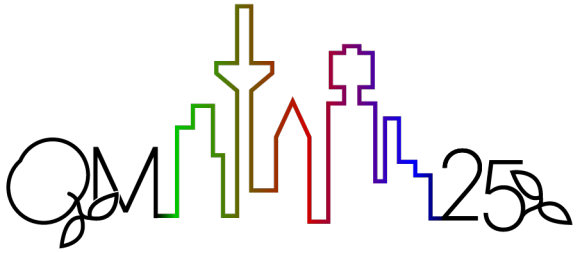

Contribution ID: **396** Type: **Poster**

Real-time dynamics of the quark-meson model from the functional renormalization group

To bridge the gap between the theory of the QCD phase diagram and the phenomenology of heavy-ion collisions it is important to understand the real-time dynamics of hot and dense QCD matter. One commonly employed low-energy effective theory for the QCD phase structure is the quark-meson model. In this talk, I will show how the real-time dynamics of the quark-meson model can be studied non-perturbatively using a formulation of the functional renormalization group (FRG) on the Schwinger-Keldysh contour. As a particular application, we consider dissipative dynamics for the chiral order parameter and study the corresponding effects on static observables such as the phase diagram. We find that, unlike in classical systems, dissipation can potentially affect static observables through the contributions of non-zero Matsubara modes. We investigate these effects quantitatively within two phenomenological models for the temperature dependence of the pion damping.

Category

Theory

Collaboration (if applicable)

Authors: ROTH, Johannes; Prof. VON SMEKAL, Lorenz (Justus-Liebig University Giessen); Prof. SCHLICHTING, Soeren (Universität Bielefeld); YE, Yunxin

Presenter: ROTH, Johannes

Session Classification: Poster session 1

Track Classification: QCD phase diagram & critical point