19th International Conference on QCD in Extreme Conditions (XQCD 2023)

Contribution ID: **20** Type: **Poster**

Inhomogeneous phases and non-monotonic dispersion relations in strongly-interacting matter

Wednesday, July 26, 2023 7:35 PM (25 minutes)

In this talk, I discuss results about inhomogeneous chiral phases, where in addition to chiral symmetry also translational symmetry is broken, and the related moat regimes, where non-monotonic dispersion relations appear driven by a negative wave function renormalization. These phenomena may occur in strongly-interacting matter under extreme conditions such as finite baryon density and temperature. The possibility of inhomogeneous phases and moat regimes is studied in a variety of Four-Fermion and Yukawa theories, which are considered as low-energy effective models of QCD. Using the mean-field approximation, we analyze the stability of homogeneous condensates against inhomogeneous perturbations to draw conclusions about the phase diagrams of these theories. Also, we study the consequences of a negative wave function renormalization with respect to bosonic correlation functions in an effective O(N) model using lattice field theory.

Author: WINSTEL, Marc (Goethe University, Frankfurt am Main)

Presenter: WINSTEL, Marc (Goethe University, Frankfurt am Main)

Session Classification: Poster session