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Chiral phase transition in expanding quark system

Summary

We investigate the chiral phase transition in an expanding quark gas system by self-consistently solving the coupled Vlasov equation and the gap equation. The collisions are taken into consideration by relaxation time approximation. The expanding system with different symmetries are investigated, including longitudinal expansion, spherical expansion, Bjorken expansion and Gubser expansion. The chiral phase transition gives rises to a kink in the flow velocity, which is caused by the force term in the Vlasov equation. The influence of collision term on the chiral phase transition is also analyzed by studying the phase boundary in the expanding system.

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