

Chiral phase diagrams of a rotating system within Yukawa model

Content

We present the consequences of the chiral symmetry restoration within the Yukawa model with spontaneous symmetry breaking. In order to observe chiral restoration, we calculate the effective potential in the high temperature approximation, we take into account one-loop corrections for boson and fermion fields, and ring diagrams correction for boson fields, where the plasma screening properties are considered. We perform an analysis to show the behavior of the critical temperature of the transition as we modify the angular velocity Ω , and explore for different values of the boson self-coupling λ and the boson-fermion coupling g . We find that the critical temperature for the chiral symmetry restoration always shows a decreasing behavior until a minimum value is reached, after which the critical temperature starts to increase monotonically as the angular velocity increases. We report the phase diagram in the T - Ω plane where the temperature of the transition and the nature of the transition are observed to change with the rotating nature of the system.

Summary

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