Decay Process σ→ππ and Chiral Phase Transition

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Abstract: The decay process σ→ππ at high temperature and density and its relation with chiral phase transition are discussed in the framework of the Nambu-Jona-Lasinio model. The decay rate for the process σ→ππ is calculated in the whole temperature and density region. The contribution of the final state pion statistics to the decay rate is discussed. The maximum decay rate at different chemical potentials is computed. Finally, we investigate the relation between the starting point of the decay process and the critical point of the first-order chiral phase transition.

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