

Spin alignment of K^* induced by strange-baryonic inhomogeneity

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The difference between the spin alignments of K^* and those of ϕ at the low collision energies is a puzzle raised by the recent experiments. Unlike ϕ meson, K^* , carrying a unit strange charge, should react to strange chemical potential μ_S . In this talk, I shall first convince you that μ_S is not small in a baryon-rich medium for keeping strange neutrality, and then derive the spin alignment induced by the gradient of μ_S , and hence of baryon chemical potential μ_B , using linear response theory, with the transport coefficients expressed, without any approximation, in terms of the K^* 's in-medium spectral properties by employing Ward-Takahashi identity. It turns out that such an effect applies mainly to the particles whose longitudinal and transverse modes diverge, and induces only the local spin alignment in a static medium. The magnitudes of these coefficients will be further estimated under the quasi-particle approximation.

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