

# Spin alignment of vector mesons in a rotating medium : a NJL model study

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Vorticities in heavy-ion collisions (HIC) are supposed to induce spin alignment and polarization phenomena of quarks and mesons. In this paper, we consider a uniformly rotating medium in which quark and anti-quark pairing are suppressed. Consequently, in the framework of Nambu-Jona-Lasinio (NJL) model, dynamical quark masses are descending as the angular velocities grow. In case of vector mesons, mass splitting will emerge among three different spin component  $s_z = 0, \pm 1$  along the axis of rotation (z-axis). Furthermore, in a thermal equilibrium system, the difference of mass spectra among  $\phi_{s_z=0, \pm 1}$  will cause that vector meson with  $s_z = +1$  will be preferred in a rotating medium. Correspondingly,  $\phi$  mesons will be less possible to occupy the  $s_z = 0$  state which leads to spin alignment  $\rho_{00} < \frac{1}{3}$ .

## Theory / experiment

Theory

## Group or collaboration name

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