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Title: From spin polarization of quarks to global spin alignment of ϕ mesons

Speaker : Dr. Xin-li Sheng (盛欣力), University of Sci.&Tech. of China (USTC)

Abstract:
The STAR preliminary data for ϕ meson ' s spin alignment ρ_{00} is significantly larger than 1/3, which is beyond our current understanding of the polarization. In this seminar, I will first show how to derive the global thermal equilibrium distribution from the kinetic theory for massive spin-1/2 fermions. Such a distribution gives the spin polarization of quarks in vorticity and electromagnetic fields. With the help of coalescence model, the spin alignment of ϕ mesons was constructed. We will see that a large positive derivation of ρ_{00}^{ϕ} from 1/3 may be the result of a mean field of ϕ instead of the vorticity field or the electromagnetic field.