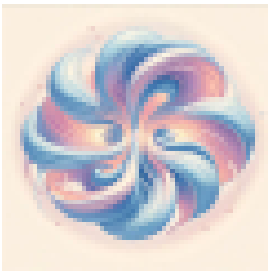

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Longitudinal spin polarization in a thermal model with dissipative effects

vendredi 26 juillet 2024 12:30 (30 minutes)

In this work, we address the problem of longitudinal spin polarization of the Λ hyperons produced in relativistic heavy-ion collisions. We combine a relativistic kinetic-theory framework that includes spin degrees of freedom treated in a classical way with the freeze-out parametrization used in previous investigations. The use of the kinetic theory allows us to incorporate dissipative corrections (due to the thermal shear and gradients of thermal vorticity) into the Pauli-Lubanski vector that determines spin polarization and can be directly compared with the experimental data. As in earlier similar studies, it turns out that a successful description of data can only be achieved with additional assumptions –in our case, they involve the use of projected thermal vorticity and a suitably adjusted time for spin relaxation (τ_s). From our analysis, we find that $\tau_s \sim 5$ fm/c, which is comparable with other estimates.

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