

Spin alignment of vector mesons as a probe of spin hydrodynamics and freeze-out

Sunday 25 September 2022 10:10 (20 minutes)

We argue that a detailed analysis of the spin alignment of vector mesons can serve as a probe of some aspects of spin dynamics in the vortical fluid for which there have been quite a few theoretical developments but relatively little phenomenology: The degree of relaxation between vorticity and parton spin polarization, and the degree of coherence of the hadron wavefunction at freeze-out. We show, using a coalescence model, that local spin density and vorticity impact the hadron wavefunction in different ways, and this is much more straight-forward to disentangle for a vector meson than for a spin 1/2 baryon. We comment on the relevance of this issue for the current lack of consistency between experimental data on Lambda polarization and K^* , phi spin alignment. Based on <https://arxiv.org/abs/2104.12941>.

Co-author: TORRIERI, Giorgio

Presenter: GONÇALVES, Kayman (Universidade Estadual de Campinas)

Session Classification: Theory