Measurement of Λ Transverse Polarization in Au+Au Collisions at RHIC

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Transversely polarized Λ-hyperons were observed in unpolarized p+p and p+A collisions more than 50 years ago. However, the underlying mechanism remains poorly understood. Such measurements in heavy-ion collisions will advance our understanding of the origin of transverse polarization and its connection to global polarization.

In this talk, we present the measurements of transverse polarization of Λ hyperons in Au+Au collisions at $\sqrt{s_{\rm NN}}$ = 3 GeV. The data taken with the STAR detector in fixed-target experiments provide access to a large Feynman-x ($x_F = p_\Lambda^z/p_{\rm beam}$) range up to 0.8. The dependence of transverse polarization on collision centrality, x_F, and transverse momentum p_T will be reported. We will also discuss the implications of these measurements for understanding the global polarization behavior in the high-baryon-density region.