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# φ spin alignment w.r.t global angular momentum reconstructed with 1st order event plane

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The spin alignment of the φ-meson could be sensitive to different hadronization scenarios and the vorticity of the colliding system. We present the spin alignment measurements of φ-mesons produced at mid-rapidity with transverse momentum up to 5 GeV/c in STAR. The alignment is quantified by the diagonal spin density matrix elements ρ00 with respect to the normal of the 1st order event plane, which itself is reconstructed with the Zero Degree Calorimeter. The results will be presented as a function of the transverse momentum and collision centrality for the beam energies of 11.5, 19.6, 27, 39 and 200 GeV. The implications of our results will be discussed.

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