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Elliptic flows of charmonium states in heavy ion collisions

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Starting from the investigation on the measurements of elliptic flows for charmed hadrons, we study charmonium state elliptic flows formed from coalescence of charm and anti-charm quark elliptic flows in the quark-gluon plasma. We find that the elliptic flow of the J/ψ meson is larger than that of the ψ(2S) meson in the intermediate transverse momentum region, and show that the elliptic flows of charmonium states depend significantly on both their constituent quark elliptic flows and their wave function distributions in momentum space. Based on our evaluations of charmonium state elliptic flows we also discuss *the quark number scaling of elliptic flows* for charmonium states, and conclude that studying the elliptic flow of each charmonium state allows us to have a better understanding of the production mechanism of charmonium states in relativistic heavy ion collisions.

Content type

Theory

Collaboration

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