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Single transverse spin asymmetry of very forward neutral pion

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We present that the large single transverse spin asymmetry for the pion production in the very forward direction is diffractively produced. The differential cross section of the $p + p^\uparrow \rightarrow \pi^0 + X$ can be expressed in terms of hybridized Regge amplitude and inclusive proton-baryon processes $A_{pB \rightarrow X}$. The interference of p and $\Delta(1700)$ turns out to be dominant to A_N . In addition, the inclusive part of the differential cross section can be approximated as a triple-Regge diagram with pion exchange. Our numerical results show a good agreement with the p_T and x_F distribution from the RHICf experiment. The present study indicates that in the low p_T region A_N is of diffractive nature.

Present via

Offline

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