

# Twist-three Fragmentation Function Contribution to the Single Spin Asymmetry in $pp$ Collisions

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## Abstract

We study the twist-three fragmentation function contribution to the single transverse spin asymmetries in inclusive hadron production in  $pp$  collisions,  $p^\uparrow p \rightarrow h + X$ . In particular, we evaluate the so-called derivative contribution which dominates the spin asymmetry in the forward direction of the polarized proton. With certain parametrizations for the twist-three fragmentation function, we estimate its contribution to the asymmetry of  $\pi^0$  production at RHIC energy. We find that the contribution is sizable and might be responsible for the big difference between the asymmetries in  $\eta$  and  $\pi^0$  productions observed by the STAR collaboration at RHIC.

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