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Single-spin asymmetry in the reaction $p^\wedge + A(p) \rightarrow \pi^0 X$

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Single-spin asymmetry (AN) in the reaction $p^\wedge + A(p) \rightarrow \pi^0 X$ with transversely polarized proton beam in pp and pA collisions is analyzed within the framework of the phenomenological model of chromomagnetic polarization of quarks (CPQ) [1-5]. Numerous existing data are compared with model calculations, including recent measurements of pp, pAl and pAu collisions with c.m. energy $\sqrt{s} = 200$ GeV [6]. There is good agreement between the data and calculations using the CPQ model. Detailed calculations of AN were performed depending on kinematic variables such as \sqrt{s} , pT, xF and the atomic weight of the target. In some kinematic regions, unusual behavior is expected, including asymmetry sign reversal and AN (xF) oscillation. This behavior can be studied in existing and future experiments.

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