

## Forward neutron single spin asymmetries in proton-proton and proton-nucleus collisions

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Forward neutron single spin asymmetries in proton-proton collisions have been discovered in early polarized RHIC running and have since been used as local polarimetry by the RHIC experiments. Its creation mechanism can be explained by the interference of pion and  $a_1$  exchange between the polarized proton and the other hadron. However, the PHENIX experiment discovered that the asymmetries in proton-nucleus collisions change sign and have a larger magnitude, which can be explained by ultra-peripheral collisions. To better understand the interplay of the two suggested mechanisms, the data was analyzed as a function of transverse momentum and  $x_F$  and in (anti)correlation with detector activity that is sensitive to the presence or absence of hard collisions.

The results for proton-proton, proton-Aluminum and proton-Gold collisions will be presented and compared to model predictions including both mechanisms.

### Submitted on behalf of a Collaboration?

Yes

**Author:** SEIDL, Ralf

**Presenter:** SEIDL, Ralf

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