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Feasibility studies of Λ transverse polarization in p+p interactions within NA61/SHINE at the CERN SPS

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NA61/SHINE is a fixed-target experiment at the CERN SPS. Its spectrometer has unique properties including large particle acceptance and precise momentum measurement. These properties together with high statistics of collected proton-proton collisions at beam momentum 158 GeV/c allow analyzing the transverse polarization of Λ hyperons produced in the primary vertex.
The opportunities for measurements of transverse polarization of Λ hyperons in NA61/SHINE were studied based on Monte-Carlo simulations and the results will be presented. Especially, the biasing impact of magnetic field on polarization will be discussed in detail. The results suggest that the bias of Λ polarization due to precession in the magnetic field is limited and less than biases due to limited detector acceptance.

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