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## Spin Physics with a fixed-target experiment at the LHC

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A fixed-target experiment using the LHC beams with a polarized target would offer a unique opportunity to study the internal structure of the nucleon. Recent studies have shown that a number of spin and azimuthal asymmetries are large enough to be precisely measured, allowing to constrain several non-perturbative functions which encode the three-dimensional spin structure of the nucleon, as the quark and gluon Sivers functions.

In this talk I will review the ambitious spin physics program developed by the AFTER@LHC study group. I will confront the state-of-the-art theoretical predictions with the potential of a fixed-target experiment at the LHC to unravel the nucleon structure through different high-energy processes, using LHCb-like and ALICE-like detectors.

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