Contribution ID: **63** Type: **Oral**

Semi-inclusive deep inelastic scattering off a tensor-polarized spin-1 target

We investigate semi-inclusive deep inelastic scattering (SIDIS) off a tensor-polarized spin-1 target, focusing on the production of an unpolarized hadron. We derive a comprehensive differential cross-section expression, characterized by 23 structure functions, which depend on the target spin states and the azimuthal distribution of the final-state hadron.
Within the TMD factorization framework, we perform a tree-level calculation of the hadronic tensor using quark-quark correlator and quark-gluon-quark correlator up to twist-3.
This yields 21 nonvanishing structure functions at leading and subleading twist, expressed in terms of TMD PDFs and TMD FFs. The measurement of these nonzero structure functions can be utilized to explore the tensor-polarized structure for spin-1 particles, offering insights into their internal dynamics.

Primary authors: Prof. BACCHETTA, Alessandro (University of Pavia); Dr ZHAO, Jing (Shandong University); Prof. KUMANO, Shunzo (vHigh Energy Accelerator Research Organization (KEK)); LIU, Tianbo (Shandong University); Prof. ZHOU, Ya-jin (Shandong University)

Presenter: Dr ZHAO, Jing (Shandong University)

Session Classification: Parallel

Track Classification: Three-dimensional structure of the nucleon: transverse momentum dependent parton distributions