Light Cone 2017 (LC2017)
Frontiers in Light Front Hadron Physics : Theory and Experiment
18th - 22nd September 2017, University of Mumbai

Contribution ID: **43** Type: **not specified**

Sivers and $\cos(2\phi)$ asymmetries in J/ψ production in SIDIS process

Gluon SIvers function (GSF) and Boer-Mulders function (BMF) have been receiving lot of interest both theoretically and experimentally, as they provide the information about the spin nature of the hadron.
GSF describes the distribution of unpolarized gluons inside the transversely polarized proton. Gluon version BMF represents the density of linearly polarized gluons inside an unpolarized hadron. However, the information about these
functions is not apprehended yet. GSF and BMFs can be extracted by measuring Sivers and $\cos(2\phi)$ asymmetries in ep and pp collision.
In order to advance in understanding about these obscure functions, we estimate Sivers and $\cos(2\phi)$ asymmetries in
J/ψ production in semi-inclusive deep inelastic (SIDIS) process employing TMD factorization framework. NRQCD based color octet model is adopted
for calculation J/ψ production rate. J/ψ production in SIDIS process directly probes the GSF and BMFs. The estimated Sivers asymmetry
is negative and is in considerable agreement with COMPASS data at $z = 1$. $\cos(2\phi)$ asymmetry is estimated as a function
of p_T and Bjorken variable (x_B).

Primary author: Mr SANGEM, Rajesh (IIT Bombay)

Co-author: MUKHERJEE, Asmita (IIT Bombay)

Presenters: Mr SANGEM, Rajesh (IIT Bombay); MUKHERJEE, Asmita (IIT Bombay)