$SU(3)_{flavor}$ TMD PDFs extraction with global fits & ANN

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Abstract :

Transverse Momentum Dependent Parton Distribution Functions (TMD PDFs) can be extracted from the processes that are corresponding to multiple kinematic scales such as Drell-Yan (DY), Semi Inclusive Deep Inelastic Scattering (SIDIS) and e^+ e^- annihilation. Among the eight leading-twist TMD PDFs, there are two time-reversal odd TMDs, namely Sivers function & Boer-Mulders function, which represent the correlation between the spin of the quark and the spin of the hadron. These T-odd TMD PDFs have conections to the partons' orbital angular momenta contributing to the overall angular momentum of the hadron. Not only implementing global fits to the available data, but also an Artificial Neural Network (ANN) can be trained with regression to simulate these time-reversal odd TMDs. A preliminary analysis in the case of $SU(3)_{flavor}$ TMDs extraction using an ANN with available experimental data will be presented in this talk.