

- ▶ Proton spin $1/2$ fermion made with 3 quarks: *uud*.
- ▶ According to “Ellis-Jaffe” sum rule : quarks contributes about 60% of the total spin of the proton, but EMC found about that the 20% of the total spin of the proton is contributed by the quarks.
- ▶ According to “Jaffe-Manohar” spin decomposition, 25% of the proton spin comes from intrinsic spin of the quarks, about 50% comes from the angular momentum of the quarks, g contributes to the about 30% of the total angular momentum of the proton.
- ▶ TMDs : distributions of the hadron's quark or gluon momenta that are perpendicular to the momentum transfer between the beam and the hadron.
- ▶ Provide information on the confined motion of quarks and gluons inside the hadron and complement the information on the hadron structure.
- ▶ Depending on the polarization of the quark/nucleon polarization, we have 6 TMDs. Polarized nucleon and un-polarized quark - Sivers function. Un-polarized nucleon and polarized quarks - Boer-Mulders function.

