Contribution ID: **160** Type: **not specified**

Novel master formula for twist-3 soft-gluon-pole mechanism to single transverse-spin asymmetry

Thursday 19 April 2007 09:40 (20 minutes)

It is known that a dominant QCD mechanism for the single transverse-spin asymmetry in hard processes is induced by the twist-3 quark-gluon correlations inside a hadron, combined with the soft-gluonic poles to produce the interfering phase for the associated partonic hard scattering. We show that the coupling of the relevant soft gluon to partonic subprocess can be systematically disentangled, so that the corresponding interfering amplitude can be calculated entirely in terms of the partonic cross section for 2-to-2 Born subprocess which participates in the twist-2 cross section formula. We establish a new formula that represents the exact rules to derive the SSA due to soft-gluon poles from the knowledge of the twist-2 cross section formula. This master formula is applicable to a range of processes like Drell-Yan and direct-photon production, and pion production in semi-inclusive deep inelastic scattering and in pp collisions. The detail is reported in our recent paper HEP-PH 0612117.

Author: Prof. TANAKA, Kazuhiro (Dept. of Physics, Juntendo University)

Co-author: Prof. KOIKE, Yuji (Department of Physics, Niigata University)

Presenter: Prof. TANAKA, Kazuhiro (Dept. of Physics, Juntendo University)

Session Classification: Spin Physics

Track Classification: Spin Physics