Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Intrinsic transverse momentum and QCD vacuum structure[1] P. SCHWEITZER, U. Connecticut, M. STRIKMAN, Penn State, C. WEISS, Jefferson Lab — Recent theoretical work has shown the existence of non-perturbative short-range correlations between partons caused by the dynamical breaking of chiral symmetry in QCD [1]. The light sea quarks in the nucleon wave function exist in correlated pairs with transverse size $\ll 1$ fm, much smaller than the nucleon's valence quark size. This effect broadens the transverse momentum-dependent (TMD) distribution of sea quarks and defines the natural boundary of perturbative QCD evolution. The non-perturbative parton correlations can be studied experimentally in measurements of hadron correlations in semi-inclusive DIS (COMPASS, EIC), and in exclusive meson production processes (JLab 12 GeV). They also influence the rate of multiparton processes in high-energy nucleon-nucleon collisions (LHC).

[1] P. Schweitzer, M. Strikman, C. Weiss, JHEP 1301 (2013) 163.

[1]Work supported by DOE grant no DE-FGO2-93ER40771, and NSF grant no 1406298.

Peter Schweitzer
University of Connecticut, Storrs, CT

Date submitted: 09 Jan 2015 Electronic form version 1.4