Hadronization of quarks and correlated di-hadron production in DIS[1] HARUT AVAKIAN, Jefferson Lab, CLAS COLLABORATION — The production of two hadrons in Deep Inelastic Scattering (DIS) provides access to partonic dynamics and correlations between orbiting partons not accessible in the single-hadron inclusive DIS (SIDIS). The interpretation of di-hadron production, as well as interpretation of single-hadron production is intimately related to contributions to those samples from correlated di-hadrons in general, and vector mesons, in particular. Single hadron production, being part of correlated di-hadron production, could be described in the factorized approach, as a convolution of set of different spin-dependent and independent distribution and fragmentation functions. However, there are certain applications where the simple fragmentation functions, depending on the fraction of the virtual photon energy carried by the hadron and transverse momentum generated in the fragmentation, may not be enough for precision description of the hadronization process. The list of these applications, some of them critical for interpretation of the data, includes modeling of hadronization of polarized quarks, procedures for accessing transverse momentum of quarks, fraction of secondary lepton pairs produced in electroproduction, and even the procedure for radiative corrections in SIDIS. In this talk, we present latest results on di-hadron multiplicities from CLAS12 detector at Jefferson Lab, indicating that most of the pions in SIDIS at relatively small transverse momentum come from decays of vector mesons.

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