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Dihadron production in semi-inclusive DIS from transversely polarized protons

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Transverse Momentum Dependent (TMD) dihadron production, including vector meson production, allows access to various TMD distribution and fragmentation functions. Dihadron production is complementary to single hadron semi-inclusive DIS measurements, pairing the same distribution functions with different fragmentation functions. While dihadrons present unique measurement opportunities, the TMD dihadron cross section is significantly more complex than that for single hadron production, due to the polarization in the final state. Various theoretical advances, which further clarify the complexity, will be highlighted. The HERMES analysis of the transverse target moments of the TMD dihadron cross section allows the first test of a particular prediction of the Lund/Artru string fragmentation model, specifically that the favored Collins fragmentation function has opposite sign in single hadron production versus vector meson production. The status and results of this analysis will be discussed and an extension of the Lund/Artru model for disfavored fragmentation will also be presented.

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