

Abstract Submitted  
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**Collinearity criteria for transverse momentum dependent distributions in SIDIS**<sup>1</sup> SCOTT DOLAN, Penn State University Berks, MASON ALBRIGHT, Penn State University, LEONARD GAMBERG, Penn State University Berks, WALLY MELNITCHOUK, Jefferson Lab, DANIEL PITONYAK, Lebanon Valley College, ALEXEY PROKUDIN, Penn State University Berks and Jefferson Lab, NOBUO SATO, Jefferson Lab, ZACHARY SCALYER, Villanova University — We present the impact of data selection on the determination of nonperturbative transverse momentum dependence in semi-inclusive deep-inelastic scattering (SIDIS). In particular, we implement for the first time the recently introduced collinearity criteria [1] that allow selection of data predominantly in the current fragmentation region, and apply this framework to pion and kaon multiplicity data from HERMES. We use a simple analytical approximation for the solutions of the TMD evolution equations that is valid in the nonperturbative region [2], and extract the transverse momentum dependence of TMDs and the flavor dependence of their widths. We compare the resulting unpolarized TMD PDFs with previous extractions, and discuss the potential impact of the data selection criteria for future experiments. We summarize our findings and discuss the impact of this analysis for ongoing and future experiments of SIDIS. [1] M. Boglione, J. Collins, L. Gamberg, J. O. Gonzalez-Hernandez T. C. Rogers, N. Sato, Phys.Lett.B766,245(2017), [2] J.C Collins and T. R. Rogers, Phys. Rev. D 91, 074020 (2015).

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