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A journey through the heavy-light Sudakov universality class in LaMET: from quasi-TMDPDF at large Pz to quark quasi-PDF in the threshold limit

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In this talk we will provide a survey of three fundamental objects: quasi-TMDPDF, quasi-LFWF amplitudes and perturbative quark quasi-PDF that appears naturally in the application of LaMET to lattice calculation of various parton distribution functions. We demonstrate how factorization works for the three objects in the corresponding scaling limits, in a way that shares the common maximally-conformal ingredient (or hard kernel): the ***universal*** heavy-light Sudakov form factor. We show how the physical TMDPDF/LFWF amplitudes can be extracted by combining the quasi-TMD quantities together with an auxiliary space-like form factor. Finally, we explain how the NNLO heavy-light Sudakov form factor can be extracted through the threshold limit of quasi-PDF matching kernel (or perturbative quark quasi-PDF).

Authors: JI, Xiangdong; LIU, Yizhuang (Jagiellonian University); SU, Yushan (University of Maryland)

Presenter: LIU, Yizhuang (Jagiellonian University)