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Relating Euclidean correlators and light-cone correlators beyond leading twist

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During recent years there has been a tremendous and exciting activity which aims at calculating the full xdependence of parton distributions (PDFs) and related quantities in lattice QCD. To this end one needs to compute Euclidean correlators which through a perturbative matching procedure can be related to the lightcone correlation functions of interest. While the matching has already been studied in quite some detail for twist-2 light-cone PDFs, the twist-3 case was addressed only very recently for the first time. On the other hand, considering twist-3 PDFs is very important and promising as there exists very little experimental information in this field, mostly due to the kinematical suppression of twist-3 effects. We report on the status of matching calculations for twist-3 PDFs by highlighting the potential role played by singular zero-mode contributions and the need for considering 3-parton correlators. We will also show some pioneering lattice results in this field.

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