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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 x-dependence 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 light-cone 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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