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Prospects for probing generalised parton distributions in 2 to 3 exclusive processes

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In this talk, I will discuss a class of 2 to 3 exclusive processes which can be used to probe generalised parton distributions (GPDs). One of the main advantages of such exclusive processes is that they have an enhanced sensitivity to the x-dependence of GPDs, compared to standard 2 to 2 exclusive processes such as Deeply Virtual Compton Scattering (DVCS), which only give moment-type information. I will focus on the exclusive photon-meson photoproduction process, where the outgoing meson is either a ρ-meson (any charge) or a π-meson (charged only). In fact, if the outgoing meson is chosen to be a transversely polarised rho meson, then the process is directly sensitive to transversity GPDs. This case represents one of the few processes which can probe chiral-odd GPDs at the leading twist. I will discuss the results of calculations that we performed at leading order in the strong coupling constant α_s, and show that such processes deserve experimental studies. In particular, our results indicate that the process can be measured at JLab, COMPASS, LHC in UPCs and at the upcoming EIC. Due to higher energies available in collider mode, one can also focus on the study of GPDs at small skewness parameter ξ.

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