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Exploring exclusive factorization beyond the leading twist regime within saturation physics

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Exclusive diffractive meson production represents a promising channel for investigating gluonic saturation inside nucleons and nuclei. I'll discuss a systematic framework to deal with beyond leading power corrections at small-x, including the saturation regime, and obtain the $\gamma_* \to M(\rho, \varphi, \omega)$ impact factor with both incoming photon and outgoing meson carrying arbitrary polarizations. This is of particular interest, as the saturation scale at modern colliders, although entering a perturbative regime, is not large. As a result, higher-twist terms can lead to significant effects.

Based on:
R. Boussarie, M. Fucilla, L. Szymanowski and S. Wallon, Phys. Rev. Lett. 134 (2025) no.4, 041901 and Phys. Rev. D 111 (2025) no.1, 014032

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