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Minimal set of variables and high-energy building blocks at high multiplicity

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Extending the BFKL program beyond next-to-leading logarithms requires high-multiplicity central-emission vertices (CEV) and peripheral emission vertices (PEV). In this talk, I discuss how to conveniently extract these building blocks at tree level from amplitudes in general kinematics using a suitable (minimal) set of kinematic variables. Specifically, we determine all quark and gluon emission vertices with up to four partons in the final state and show how analytic expressions free of spurious poles can be obtained. We then analyse the properties of these emission vertices, demonstrate their factorization into lower-point vertices in soft and collinear limits and in further high-energy limits. Finally, we study additional identities satisfied by the set of PEVs and CEVs, including the photon decoupling identity, Kleiss-Kuijf relations, and SUSY Ward identities.

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