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# Soft factorization in multi-parton scattering

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Multi-parton interactions in proton-proton scattering are processes in which two or more pairs of partons undergo a hard interaction. In order to rigorously describe multi-parton scattering in perturbative QCD, one needs to prove a factorization theorem that allows one to separate the hard interactions from the collinear and soft ones, in a similar way as has already been done for single-parton scattering. We introduce the strategy applied in the proof of the decoupling of soft gluons from the collinear sub-processes, which is based on a recursive application of Ward identities, and give a sketch of the procedure leading to the final formula.

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