



High Energy Physics - Phenomenology

On kinematical constraints in fermion-antifermion systems

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We consider the scattering of fermions off antifermions with spin $1/2$ and $3/2$. Starting from helicity partial-wave scattering amplitudes we derive transformations that eliminate all kinematical constraints. Such amplitudes are expected to satisfy partial-wave dispersion relations and therefore provide a suitable basis for data analysis and the construction of effective field theories. Our derivation relies on a decomposition of the various scattering amplitudes into suitable sets of invariant functions.

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