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Chirality flow and how it can speed up amplitude calculations

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Two years ago, we introduced a new method for calculating Feynman diagrams more efficiently and transparently, the chirality-flow formalism. In this framework, which builds on the spinor-helicity formalism and is inspired by QCD colour flow, analytic tree-level Standard Model Feynman diagrams can be written down almost immediately as complex numbers, without the need for intermediate algebra. In this talk, I will introduce chirality flow, and — as a proof-of-concept — discuss how using it for massless QED makes Mad-Graph5_aMC@NLO a factor 2-10 times faster for processes with up to 7 final-state particles, with increasing speed gain for increasing multiplicity.

Declaration

I certify that I have checked that I am authorised to submit the abstract with the listed co-authors with their current affiliations

Change of Speaker

I understand that change of speaker is allowed provided that no participant gives more than one talk. Otherwise, we will ask the speaker to choose between one or the other abstract to be presented.

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