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A Parton-Level Simulation of Double Parton Scattering

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Multiple parton interactions and, more specifically, double parton scattering are usually suppressed by single parton scattering. However, in some specific regions of phase-space, the differential cross sections are comparable. Also, for a given final state, it might happen that the double parton scattering is the dominant contribution if the single parton scattering is suppressed by a higher multiplicity of couplings. For these reasons, it turns out to be necessary to include double parton scattering in event generators in order to give a better description of the data at high energy scales such as at the LHC. The description of double parton scattering requires the use of double parton distributions and many efforts have been made during the last decade to produce realistic sets of those distributions, despite the lack of experimental data. In this presentation, we introduce a parton-level simulation of double parton scattering that combines a set of double parton distributions and an angular-ordered parton shower.

Summary

Primary author: CABOUAT, Baptiste (University of Manchester)

Presenter: CABOUAT, Baptiste (University of Manchester)

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