

Abstract Submitted
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Helicity-Based Parton Shower for Matching with QCD Matrix Elements¹ KASSAHUN BETRE, Graduate Student — The search for new physics at the LHC requires ever better understanding of the QCD backgrounds of the Standard Model at high jet multiplicity. For this, event generators with the capacity to accurately handle the large phase space of high jet multiplicity events are needed. These event generators must also be able to match showered events with exact QCD matrix element calculations for improved accuracy. Antenna based showering algorithms have been developed that are capable of handling the large phase space of high multiplicity events efficiently. On the other hand, the exact leading-order QCD matrix element of high multiplicity events can be calculated efficiently using the BCFW recursion formula. In this talk I present a new event generator that implements BCFW for fast QCD matrix element calculation with antenna based, helicity-dependent showering algorithms. The showering produces helicity and color states at each step that are matched to the corresponding QCD matrix elements.

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