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KKMChh: Matching CEEEX Photonic ISR to a QED-Corrected Parton Shower

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KKMChh adapts the CEEEX (Coherent Exclusive Exponentiation) of the Monte Carlo Program KKMC for Z boson production and decay to hadron scattering. Amplitude-level soft photon exponentiation of initial and final state radiation, together with initial-final interference, is matched to a perturbative calculation to second order next-to-leading logarithm, and electroweak corrections to the hard process are included via DIZET. The first release of KKMChh included complete initial state radiation calculated with current quark masses. This version assumes idealized pure-QCD PDFs with negligible QED contamination. Traditional PDFs neglect QED evolution but are not necessarily free of QED influence in the data. QED-corrected PDFs provide a firmer starting point for precision QED work. We describe a new procedure for matching KKMChh's initial state radiation to a QED-corrected PDF, and compare this to earlier approaches. Some phenomenological applications are described.

In-person participation

Yes

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