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Color coherent subtraction at NNLO QCD - The double-real case

Precision QCD calculations are essential for exploiting the physics potential of future high-luminosity lepton colliders such as the FCC-ee. We present a new local infrared subtraction scheme for next-to-next-to-leading order (NNLO) QCD calculations. The method employs scalar multipole radiator functions and pure splitting remainders that are fully color and spin dependent, valid across the complete phase space. Overlapping singularities in multipole radiators are systematically disentangled through partial fractioning, guided by coherent branching techniques. Numerical results for the double-real correction to $e^+e^- \to 2j$ at the Z pole are presented.

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