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An automated framework to calculate jet and beam functions at NNLO

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We present a novel formalism to calculate beam and jet functions automatically at next-to-next-to-leading order in perturbation theory. By employing suitable phase-space parameterisations in combination with sector-decomposition steps and selector functions, we managed to factorise all divergences in the phase-space integrations, and we implemented our framework in the publicly available code pySecDec. Our approach covers a wide class of SCET-1 and SCET-2 observables, and we present results for several event-shape observables for both quark and gluon jet functions, as well as for p_T -resummation, jet vetoes and hadronic event shapes for quark beam functions.

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