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Mapping the QCD radiation spectrum

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Precision physics at the HL-LHC will require novel techniques to distinguish hard QCD from pileup and beam jets (e.g. the identification of hadronic W^+ decay for electroweak measurements or boosted top tagging). One scheme is to identify the signature of QCD radiation inside of jets. The high particle-multiplicity of LHC multijets permits fine-grained investigation of the QCD radiation spectrum via N -point correlation functions. But even with a relatively simple example – the Fox-Wolfram moments at an e^+e^- collider – high-frequency aliasing masks any useful information. We propose a general solution to suppress spectral leakage for any spatial correlation function.

Summary

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