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Improving alpha_s extractions from collider data

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Measuring the strong coupling constant from high-energy collider data with precision comparable to the lattice has been a persistent challenge. For e+e- event shapes, a long-standing discrepancy between extractions from thrust and heavy jet mass may be due to physics in the trijet region. In particular, there is Sudakov shoulder in heavy-jet mass but not thrust which we now know how to resum to NNLL accuracy. For hadron colliders, ratios of energy correlators are excellent for alpha_s measurements with good perturbative convergence and small power corrections. I will report on theoretical advances for both of these cases using soft-collinear effective theory and the remaining hurdles that may need to be overcome to get to world-leading precision.

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