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Progress on IR singularities of multileg QCD amplitudes

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I review the state-of-the-art knowledge of IR singularities in multileg QCD amplitudes, identifying the key reasons for the remarkable simplicity of the soft anomalous dimension. I then present a novel strategy to compute this quantity using a lightcone expansion of correlators of semi-infinite Wilson lines by the method of regions. Recently, this strategy allowed us to determine the three-loop soft anomalous dimension, accounting for interactions between a single massive coloured particle and any number of massless ones. Finally, I discuss some of the key properties of the soft anomalous dimension, associated with its analytic structure and with special kinematic limits. These provide not only powerful checks of the computation, but also an alternative avenue to determine similar quantities by bootstrap.

Presenter: GARDI, Einan