

Machine learning in the Lund plane (15'+5')

Tuesday, December 12, 2017 9:20 AM (20 minutes)

We introduce a novel representation for emission patterns inside a jet, by declustering a Cambridge-Aachen jet and using the primary-emission Lund plane coordinates.

We present several possible variations of this method, and show how it can be used to construct either an n by n pixel image or a graph, which can be used as inputs for neural networks.

Using W tagging as an example, we show how these jet representations can be used as inputs for convolutional neural networks or recurrent neural networks, performing on par or better than other state-of-the-art methods.

We illustrate in particular how networks trained on Lund coordinates result in excellent discrimination at high p_t .

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Session Classification: Learning more about QCD