

An $SU(3)$ parton shower and orthogonal color bases

Parton showers are essential tools for predicting and understanding LHC results. However, they all rely on a set of approximations, one of them being the approximation of the three colors of nature with infinitely many. In this talk I will present the first results from an $SU(3)$ parton shower in which the radiation is described using full QCD.

I will also report on progress in the calculations necessary to describe the color space, namely on the construction of minimal orthonormal color space bases. This could potentially speed up calculations in QCD very significantly - both in parton showers and in fixed order calculations.

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