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Tools for calculations in color space

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Both the higher energy and the initial state colored partons contribute to making exact calculations in QCD color space more important at the LHC than at its predecessors. This is applicable whether the method of assessing QCD is fixed order calculation, resummation, or parton showers. In this talk I will discuss tools for tackling the problem of performing exact color summed calculations. I will start with "theoretical tools" in the form of the (standard) trace bases and the orthogonal multiplet bases (for which a general method of construction was recently presented). Following this, I will focus on two new packages for performing color structure calculations: one easy to use Mathematica package, ColorMath, and one C++ package, ColorFull, which is suitable for more demanding calculations, and for interfacing with event generators.

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