



Contribution ID: 43

Type: **Long Talk (20 mins)**

Homotopy Double copy of Noncommutative Gauge theories

Based on recent work in <http://arxiv.org/abs/2306.12175>, we discuss the double copy formulation of Moyal–Weyl type noncommutative gauge theories from the homotopy algebraic perspective of factorisations of L_∞ -algebras.

Within this framework, we show that noncommutative gauge theories exhibit a twisted form of colour-kinematics duality, which we use to show that their double copies match with the commutative case. Understanding the double copy relations as the low energy limit of a modified Kawai–Lewellen–Tye relation in string theory validates our argument.

We illustrate this explicitly for Chern–Simons theory.

In the interest of time we do not detail the calculation for Yang–Mills theory, but nevertheless the argument carries over and matches with the interpretation of non-commutative Yang–Mills as a low energy limit of open string theory in a background B field.

Time permitting we will discuss using our formalism to view known deformation of integrable theories as double copies themselves.

Would you be interested in receiving feedback on your presentation?

Yes

Other category:

Please select the most relevant category

Amplitudes

Are you happy for your talk to be recorded?

Yes

Author: TROJANI, Guillaume (Heriot-Watt university)

Presenter: TROJANI, Guillaume (Heriot-Watt university)