

Gravity Amplitudes and the Double Copy Construction

Speakers: Marco Chiodaroli (Uppsala University)

Abstract:

This lecture will give a pedagogical introduction to the duality between color and kinematics introduced by Bern, Carrasco and Johansson and to the associated double-copy structure that relates amplitudes in gauge and gravity theories. The duality states that one can rearrange scattering amplitudes in gauge theories so that kinematic building blocks obey the same generic algebraic relations as the amplitude's color factors. Duality-satisfying presentations of gauge-theory amplitudes are then instrumental in expressing gravity amplitudes in terms of gauge-theory building blocks. This double-copy property holds for a remarkably large web of theories and has been instrumental in conducting multi-loop calculations in various gravitational theories.