Institut Henri Poincaré

11 rue Pierre et Marie Curie, 75231 Paris cedex 05

String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 27 Fevrier 2020, 10:00

Timothy Adamo

Edinburgh

Scattering in chiral strong backgrounds

There are many reasons to be interested in perturbative quantum field theory in the presence of strong background fields, but surprisingly little is known in these scenarios, especially when compared to trivial backgrounds. For instance, the full semi-classical S-matrices of gauge theory and gravity are known in a trivial perturbative background, but even for simple strong backgrounds the tree-level amplitudes of these theories have not been computed beyond four-external particles. This raises the question : are all-multiplicity formulae (and other hallmarks of the study of scattering amplitudes in recent years) inextricably tied to trivial backgrounds ? In this talk, I will demonstrate that for the simplest strong backgrounds (chiral plane waves in four-dimensions), we can find all-multiplicity expressions for tree-level scattering amplitudes which are remarkably simple and clearly un-related to the standard perturbative expansion of background-coupled field theory.

Institut Henri Poincaré, salle 314, 3ème étage