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 20 Janvier 2022, 14:00

Leonardo Rastelli

Carving out the space of gravitational effective field theories

I will review recent progress on carving out the space of consistent weakly coupled gravitational effective field theories, both in flat space and in Anti de Sitter space. The main technical tools are dispersive sum rules for the S-matrix (flat space) or for CFT correlators (AdS space), which follow from the general principles of unitarity and causality. Higher derivative couplings are expected to be of order one in the units of the UV cutoff. Our approach justifies this expectation and allows to prove rigorous bounds on the order one coefficients. In particular, we prove a precise version of the conjecture that any large N CFT with a large gap must be dual to a local effective field theory in AdS.

Institut Henri Poincaré, salle 314, 3ème étage

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