

Séminaire de matrices, cordes et géométries aléatoires

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Subleading Eikonal, AdS/CFT and Double Stress Tensors

Gim Seng Ng

Trinity College Dublin

The eikonal phase which determines the Regge limit of the gravitational scattering amplitude of a light particle off a heavy one in Minkowski spacetimes admits an expansion in the ratio of the Schwarzschild radius of the heavy particle to the impact parameter. Such an eikonal phase in AdS spacetimes of any dimensionality has been computed to all orders and reduces to the corresponding Minkowski result when both the impact parameter and the Schwarzschild radius are much smaller than the AdS radius. The leading term in the AdS eikonal phase can be reproduced in the dual CFT by a single stress tensor conformal block, but the subleading term is a result of an infinite sum of the double stress tensor contributions. We provide a closed form expression for the OPE coefficients of the leading twist double stress tensors in four spacetime dimensions and perform the sum to compute the corresponding lightcone behavior of a heavy-heavy-light-light CFT correlator. The resulting compact expression passes a few nontrivial independent checks. In particular, it agrees with the subleading eikonal phase at large impact parameter.
