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 16 Janvier 2025, 10:00

Celine Zwikel

Perimeter Institute

Symmetries of the gravitational scattering in the absence of peeling

The asymptotic structure of spacetime with a vanishing cosmological constant is central to discussing gravitational radiation and gravitational scattering. In asymptotically flat spacetimes, the peeling property prescribes a decay rate for the Weyl tensor as one approaches the null boundary. However, there are compelling motivations for relaxing this peeling condition, leading to a polyhomogeneous rather than polynomial expansion in Bondi gauge. In this talk, I will review these motivations and explore the implications of introducing logarithmic terms into the asymptotic expansion. I will discuss how these modifications affect the symmetry structure of such spacetimes and the consequences on soft theorems. Furthermore, I will present new logarithmic evolution equations and flux-balance laws, which point to the existence of an infinite hierarchy of subleading logarithmic soft graviton theorems.

Institut Henri Poincaré, salle 314, 3ème étage

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