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Seminar of the Gravity and cosmology group of IJCLAB

Mercredi 25 Septembre 2024, 14 :00
IJCLAB, 210/1-114 - Salle des Séminaires
Domaines : gr-qc

Titre : *Extended boundary at spatial- and time-infinity*

Orateur : **Yannick Herfray (Université de Tours)**

Résumé : *Penrose conformal compactification allows for an elegant description of asymptotically flat spacetime where a boundary is added at null infinity. In particular the scattering data of massless fields naturally live on this boundary and this realises a representation of the BMS asymptotic symmetry group. I will review this and how this relates to recent developments in scattering amplitudes of massless fields.*

A geometric description of spatial infinity is notoriously more elusive, I will however show that methods of projective geometry allows for a picture very similar to that of null infinity. A key idea here is the introduction of an extended, four dimensional, boundary. In particular scattering data of massive fields are naturally realised on this extended boundary and carry a representation of the BMS group. Finally strong evidence suggests that "Strominger's matching conditions" have a most natural realisation in this framework.