SEMPARIS – Séminaires en région parisienne

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Cours

Vendredi 5 Novembre 2021, 10 :00
IPHT, Amphi Claude Bloch, Bât. 774
Domaines : physics

Titre : *An Ultra-Relativistic Review of BMS in Three Dimensions*

Orateur : **Blagoje Oblak (CPhT, École Polytechnique)**

Résumé : *This course is a light-speed introduction to the Bondi-Metzner-Sachs group in three space-time dimensions (BMS3) and its application to asymptotically Minkowskian holography. Specifically, we first motivate the study of BMS3 by exhibiting some technical but crucial issues with its better known, four-dimensional parent. Then we define BMS3 as an ultra-relativistic limit of the Virasoro algebra, yielding "superrotations" and "supertranslations" as Carrollian analogues of conformal transformations. We also point out that this limit readily provides an elementary holographic understanding of (classical) flat-space gravity in 3D, by relating the BMS3 stress tensor to gravitational boundary degrees of freedom. Quantization then motivates the study of unitary representations of BMS3, labelled by their mass and spin, which can seen as particles dressed with boundary gravitons. If time allows, we apply this understanding to the matching between characters and gravitational one-loop partition functions, as well as the coincidence between BMS3 geometric actions and effective 2D action functionals for 3D flat-space gravity.*

Note : *This lecture complements the IPhT course "Celestial holography primer" by Andrea Puhm. It will be broadcast and, if possible, held in-person at the IPhT. Please refer to the course page for videoconference registration and other details.*

Course page : `https://courses.ipht.fr/?q=en/node/271`
