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Soft Scattering and Holography: BMS Symmetries in Higher Dimensions

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In four spacetime dimensions, *soft theorems* concerning the factorization of amplitudes with soft gravitons are related to the BMS asymptotic symmetries of the spacetime. In particular, *subleading soft theorems* are associated to the BMS transformations usually called *superrotations*. They identify a scattering mode that behaves at the boundary like the stress tensor of a two-dimensional CFT. This discovery paved the way for the Celestial Holography approach to the Flat Spacetime Holography Problem. Although soft gravitational theorems also hold in higher dimensional theories, their asymptotic symmetry counterpart has long been elusive in dimensions greater than four. This talk depicts the construction presented in 2304.09330 [hep-th] of the simplest class of solutions of Einstein equations in higher even dimensions where BMS symmetries are consistently defined - with a local and covariant renormalization of the symplectic form - and related to soft theorems. In the process, some interesting analogies with AdS/CFT will be noted.

Summary

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