Service de Physique de l'Univers, Champs et Gravitation

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Sujet de mémoire

Coadjoint orbits of BMS groups

The goal of the project is to study the coadjoint orbits of Bondi-Metzner-Sachs (BMS) group in various dimensions [1, 2]. This is an infinite-dimensional group containing the Poincaré subgroup $ISO(1, D-1)$ and describing the asymptotic symmetries of asymptotically flat spaces. Its coadjoint orbits may thus play an important role in the ongoing attempts to establish an holographic correspondence also for asymptotically flat spaces (see e.g. [3]). They have been studied rather in detail in three dimensions [4] and some results are available in four dimensions too [5].

The concrete goal of the project is to provide an explicit parameterisation of the orbits that can be associated to physical asymptotic states, thus generalising the analysis for the coadjoint orbits of the Poincaré group reviewed in [6].

Prerequisites: courses of Group Theory and Quantum Field Theory 1

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References

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