Contributed Talk

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Title: Gravitational multipole moments for asymptotically de Sitter spacetimes

Abstract: We provide a prescription to compute the gravitational multipole moments of compact objects for asymptotically de Sitter spacetimes. Our prescription builds upon a recent definition of the gravitational multipole moments in terms of Noether charges associated to specific vector fields, within the residual harmonic gauge, dubbed multipole symmetries. We first derive the multipole symmetries for spacetimes which are asymptotically de Sitter; we also show that these symmetry vector fields eliminate the non-propagating degrees of freedom from the linearized gravitational wave equation. We then apply our prescription to the Kerr-de Sitter black hole and compute its multipole structure. Our result recovers the Geroch-Hansen moments of the Kerr black hole in the limit of vanishing cosmological constant.