

Gravitational Radiation and Charges on de Sitter

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We write a closed form expression for the metric perturbation around de Sitter that describes gravitational radiation from a compact and slowly varying source, in terms of a consistent multipolar expansion at quadrupolar order. We show that the corresponding displacement memory effect with both the even and odd parities is at a higher order in the radial expansion compared to their flat counter-parts. Using the form of the metric perturbation we obtained, we write expressions for $SO(1,4)$ charges at future infinity that reduce to the correct expressions in the flat limit, which also includes a definition of mass that strictly decreases in the presence of gravitational radiation.

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