

# Gravitational charges on null hypersurfaces

*Friday, September 8, 2023 11:30 AM (1 hour)*

We review the Wald-Zoupas prescription for gravitational charges at future null infinity, and its recent application to null hypersurfaces at finite distance and to non-expanding horizons. We highlight the importance of anomalous transformations in the phase space introduced by background structures, and how they help explaining a tricky step in the original Wald-Zoupas paper, clarify the relation between those charges and Noether charges, and enter the flux-balance laws of gravitational waves. We then present a modified set of charges at finite distance with better conservation properties, and comment on proposed extensions of the phase space at future null infinity and at finite distances.

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