

Erratum: Conserved charges of the extended Bondi-Metzner-Sachs algebra [Phys. Rev. D **95**, 044002 (2017)]

Éanna É. Flanagan and David A. Nichols 



(Received 7 August 2023; published 13 September 2023)

DOI: [10.1103/PhysRevD.108.069902](https://doi.org/10.1103/PhysRevD.108.069902)

Equation (2.18c) is not the correct variation of the angular-momentum aspect for the convention that we use (see Footnote 4 of the published article). The correct expression is as follows:

$$\begin{aligned} \delta N_A = & (f\partial_u + \mathcal{L}_{\vec{Y}} + \psi)N_A + 3mD_A f - \frac{1}{2}\mathcal{D}_{AB}D^B f + \pi(\partial_u \hat{T}_{rr})D_A f - \frac{\pi}{2}\hat{T}_{rr}D_A \psi - \frac{3}{4}D_B f(D^B D^C C_{CA} - D_A D_C C^{BC}) \\ & + \frac{3}{4}C_{AB}N^{BC}D_C f. \end{aligned} \quad (1)$$

The transformation law for N_A is used in the published paper before Eq. (2.28) and in Eq. (D3c). Those applications are not affected by the corrections to the transformation law since they are given in specific contexts where certain terms (the shear tensor and the stress energy tensor) vanish. Finally, there is a separate derivation in Appendix B of nonlinear transformation laws for metric coefficients. Those derivations use a different method and are also not impacted by the error in Eq. (2.18c).

D. A. N. thanks Shammi Tahura for pointing out this error and comparing her result in vacuum with our corrected result in Eq. (1).