

**Erratum: Hamiltonian of a spinning test particle in curved spacetime**  
**[Phys. Rev. D 80, 104025 (2009)]**

Enrico Barausse, Etienne Racine, and Alessandra Buonanno

(Received 24 February 2012; published 20 March 2012)

DOI: [10.1103/PhysRevD.85.069904](https://doi.org/10.1103/PhysRevD.85.069904)

PACS numbers: 04.25.D-, 04.25.dg, 04.25.Nx, 04.30.-w, 99.10.Cd

The expression for the test-particle limit of the canonical Arnowitt-Deser-Misner Hamiltonian at 3.5PN [Eq. 6.20] contains a typo. The coefficient of the last term should be  $75/8$  and not  $105/8$ . The correct expression is therefore

$$\begin{aligned} \bar{H}_{3.5\text{PN}} = & \frac{9m}{2M^2 r^4} (\mathbf{S}_{\text{Kerr}} \cdot \mathbf{n})(\mathbf{S}^* \times \mathbf{S}_{\text{Kerr}}) \cdot \hat{\mathbf{P}} - \frac{1}{4M^2 r^5} [5(\mathbf{S}_{\text{Kerr}} \cdot \mathbf{n})^2 - \mathbf{S}_{\text{Kerr}}^2](9\mathbf{S}^* + 4\mathbf{S}_{\text{Kerr}}) \cdot \mathbf{L} + \frac{21M^2}{2r^5} \mathbf{S}_{\text{Kerr}} \cdot \mathbf{L} \\ & + \left( \frac{7}{16r^3} \hat{\mathbf{P}}^4 + \frac{27M}{8r^4} \hat{\mathbf{P}}^2 + \frac{75}{8} \frac{M^2}{r^5} \right) (\mathbf{S}^* \cdot \mathbf{L}). \end{aligned}$$