**Erratum: I-Love-Q relations for gravastars and the approach
to the black-hole limit**
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We point out two mistakes which affect the computation of the moment of inertia and of the tidal Love number in the original paper. Both mistakes have been corrected in Ref. [1] and the correct tidal Love number agrees with the recent computation of Ref. [2].

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- (1) *Moment of inertia*.—As noted in Ref. [1], the moment of inertia of a thin-shell gravastar with zero surface density is $I = MR^2$, and not $I = R^3/2$ as stated in the original paper. Although these quantities agree in the black-hole limit, $R \rightarrow 2M$, they generically differ from each other.
- (2) *Tidal Love numbers*.—While Eqs. (25) and (26) are correct, the junction conditions (27) are wrong. As explained in Refs. [2,3], the correct junction conditions read

$$[[K]] = 0 = [[dK/dr_*]], \quad (1)$$

where the symbol “ $[[\dots]]$ ” denotes the “jump” of a given quantity across the spherical shell, i.e. $[[A]] \equiv \lim_{\epsilon \rightarrow 0} A(r \rightarrow r_0 + \epsilon) - A(r \rightarrow r_0 - \epsilon)$. In the above expression, K is a metric perturbation and r_* is the tortoise coordinate; both quantities are defined in the original paper. By using the above junction condition, Eq. (32) in the original paper should be replaced by

$$\begin{aligned} \lambda(c) = M^5 \frac{16(1-2c)^2}{\Gamma(c)} \{ & -2c(-45 + 156c + 130c^2 - 536c^3 + 120c^4) \\ & + 6\sqrt{2c}(-15 + 62c - 2c^2 - 204c^3 + 152c^4 + 16c^5) \tanh^{-1}[\sqrt{2c}] \\ & - 9(1-2c)^3(-5 - 6c + 6c^2 + 4c^3) \tanh^{-1}[\sqrt{2c}]^2 \}, \end{aligned} \quad (2)$$

with $c = M/R$ and

$$\begin{aligned} \Gamma(c) = 15(1-2c)^2 \{ & 2c(-3 + 10c)(2c(-45 - 39c + 96c^2 + 32c^3 + 32c^4) + (-45 + 6c + 150c^2 - 36c^3) \log[1-2c]) \\ & + 9(1-2c)^2 \tanh^{-1}[\sqrt{2c}]^2 (2c(15 + 3c - 46c^2 - 16c^3) + 3(5 - 4c - 18c^2 + 8c^3 + 8c^4) \log[1-2c]) \\ & + 6\sqrt{2c} \tanh^{-1}[\sqrt{2c}] (2c(-45 + 141c + 120c^2 - 460c^3 + 64c^4 + 64c^6) \\ & + 3(-15 + 62c - 2c^2 - 204c^3 + 152c^4 + 16c^5) \log[1-2c]) \}. \end{aligned} \quad (3)$$

The above result agrees with that derived in Ref. [1] using a different approach and also with the result of Ref. [2].

The most striking difference between Eq. (2) and the wrong one in the original paper is evident in the black-hole limit. While the tidal Love number derived in the original paper vanishes as $\lambda \sim (1/2 - c)^2$ as $c \rightarrow 1/2$ [cf. Eq. (34)] the correct result in Eq. (2) vanishes logarithmically, as discussed in Ref. [2].

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