

Erratum: Massive Stars, Relativistic Polytropes, and Gravitational Radiation

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[Rev. Mod. Phys. **36**, 545 (1964)]

In this paper:

(1) Equation (20) should read

$$\eta_n = \frac{3}{4\pi} (n+1)^3 \frac{\mathfrak{R}^4 \left(\frac{M_n}{M} \right)^2}{aG^3}.$$

The exponent 4 was incorrectly omitted in \mathfrak{R}^4 .

(2) In the first full paragraph following Eq. (36), it is stated that "... the customary classical argument indicates that a star in equilibrium is not stable to sudden (adiabatic) contraction or expansion when $E_{\text{eq}} > 0$." This should read: "... is not stable to sudden (adiabatic) contraction or expansion for radii smaller than those at the point at which E_{eq}/Mc^2 is a minimum.

For a polytropic structure with index $n=3$, the condition for stability from Eqs. (19), (24), (29), and (31) is therefore

$$R \geq (3/\pi)^{1/2} (R_3/\beta) (2GM/c^2) = (6.8/\beta) (2GM/c^2),$$

which is just twice the value given by the erroneous condition $E_{\text{eq}} > 0$. This can be rewritten as

$$\beta/6 \approx \Gamma_1 - 4/3 \gtrsim 1.12 (2GM/Rc^2),$$

where $\Gamma_1 = d \ln p/d \ln \rho$. Classically, $\Gamma_1 - 4/3$ averaged throughout the star must exceed zero for stability. General relativity sets an even more stringent requirement on this quantity for stability.

Erratum: Spherical Nuclei with Simple Residual Forces

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[Rev. Mod. Phys. **35**, 853 (1963)]

The following changes should be made:

(1) In Eq. (23) replace $U_j U_{j'} + V_j V_{j'}$ by $U_j V_{j'} + U_{j'} V_j$. In Eq. (48) the $\alpha_{j'}$ should be α_j . In Eq. (70) the square bracket should have a minus sign instead of a plus sign. In Eq. (83) replace π by $\sqrt{\pi}$ and $B(E2)$ by $B(E2)_{0 \rightarrow 2}$.

(2) In Eq. (A3) the phase should be $(-1)^{l_1+l_2+L+j_1+j_2}$ instead of $(-1)^{l_1+l_2+j_1+j_2}$. In Eq. (A4) the phase should be $(-1)^{l_2+j_2+l_3+j_3+1-L}$ instead of $(-1)^{l_1+j_1+l_3+j_3+1-L}$.

(3) The Fig. 1 caption should read, "The coupling parameter $X/2 = 5/4\pi \langle r^2 \rangle_\mu^2 \chi/2$ chosen ..."; the factor of 1/2 is missing. In Fig. 2 caption, the power of A should be $-3/2$ rather than $-5/3$ (wherever $A^{-5/3}$ appears, replace by $A^{-3/2}$).

(4) In Tables VIII to XVI there are sign changes in some of the one-phonon components of the wave functions. To get the wave functions with correct relative phases please make the following sign changes: In Tables VIII, XIII, and XIV, $C_{3/2 12^{1/2}}$, $C_{3/2 12^{3/2}}$, $C_{1/2 12^{3/2}}$, $C_{5/2 12^{5/2}}$, $C_{7/2 12^{5/2}}$, $C_{7/2 12^{7/2}}$, and $C_{9/2 12^{9/2}}$ change sign.

In Tables IX, X, XV, and XVI, $C_{3/2 12^{3/2}}$, $C_{5/2 12^{3/2}}$, $C_{5/2 12^{5/2}}$, $C_{3/2 12^{5/2}}$, $C_{7/2 12^{7/2}}$, and $C_{11/2 12^{11/2}}$ change sign.

In Tables XI and XII, $C_{3/2 12^{1/2}}$, $C_{1/2 12^{3/2}}$, $C_{3/2 12^{3/2}}$, $C_{5/2 12^{5/2}}$, $C_{7/2 12^{5/2}}$, $C_{5/2 12^{7/2}}$, $C_{7/2 12^{7/2}}$, $C_{9/2 12^{9/2}}$, and $C_{13/2 12^{13/2}}$ change sign.

(5) In Table XII the values of λ for Pt^{195} and Pt^{197} should be 1.64 and 1.81 instead of 2.64 and 2.81, respectively.