

Erratum: Medium modifications of 1P-wave charmonia $\chi_{cJ}(1P)$ in cold nuclear matter

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We report corrections to our paper.

In Eq. (14), a factor of 2 was omitted from the $\chi_{c2}D^*\bar{D}^*$ coupling term; it should read $2g_{\chi_{c2}D^*D^*}\chi_{c2}^{\mu\nu}\bar{D}_\mu^*D_\nu^*$. This typo does not affect any subsequent calculations or conclusions. Additionally, the predicted mass shift of χ_{c1} meson and the $D^*\bar{D}^*$ loop as well as the total contribution to the χ_{c0} meson have been corrected. The error stemmed from a bug in the loop integration code. The corrected figures, tables, and relevant fragments of text are provided below.

The corrected bare masses $M_{\chi_{cJ}}^0$ are listed in Table II here, replacing the original corresponding values.

TABLE II. Bold values indicate corrections; original incorrect values are omitted for clarity.

	Hadronic loop	$\alpha = 2$	$\alpha = 3$	$\alpha = 4$
$M_{\chi_{c0}}^0$	$D\bar{D}$	3467.2	3525.6	3591.1
	$D^*\bar{D}^*$	3426.2	3446.9	3478.3
	Total	3479.5	3559.6	3658.2
$M_{\chi_{c1}}^0$	$D\bar{D}^*$ or $D^*\bar{D}$	3543.8	3584.7	3633.7
	Total	3576.7	3657.2	3752.7
$M_{\chi_{c2}}^0$	$D\bar{D}$	3556.7	3557.8	3560.0
	$D^*\bar{D}$ or $D\bar{D}^*$	3557.0	3559.2	3563.5
	$D^*\bar{D}^*$	3771.8	4067.6	4432.9
	Total	3861.6	4188.1	4574.4

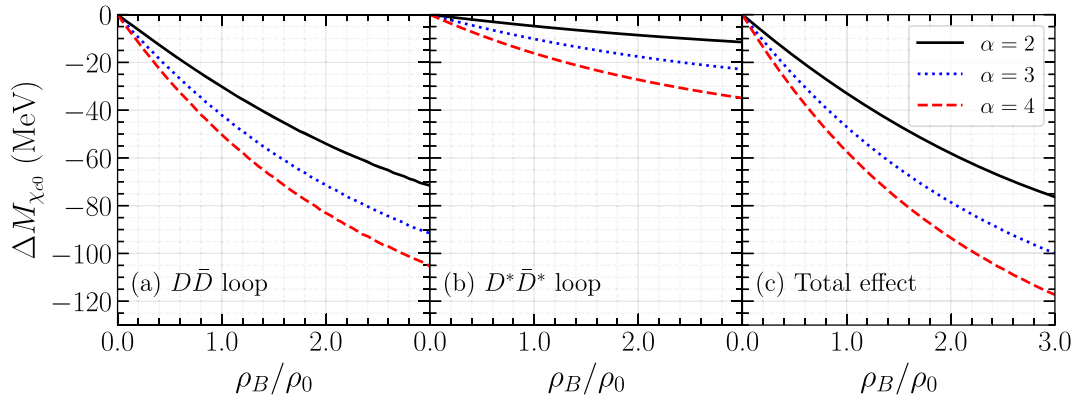


FIG. 4. Mass shift of the $\chi_{c0}(1P)$ meson as a function of baryon density ρ_B (in units of the normal nuclear matter density, $\rho_0 = 0.15 \text{ fm}^{-3}$) arising from (a) the $D\bar{D}$ loop, (b) the $D^*\bar{D}^*$ loop, and (c) their combined effect; the solid, dotted, and dashed lines represent cutoff values $\alpha = 2, 3$, and 4 , respectively.

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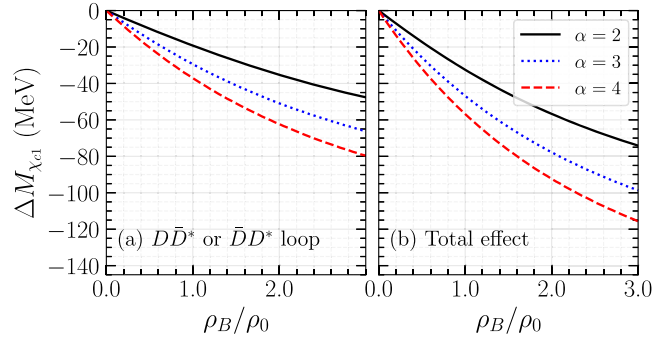


FIG. 5. Mass shift of the $\chi_{c1}(1P)$ meson as a function of baryon density ρ_B (in units of ρ_0) arising from (a) the $D\bar{D}^*$ or the $D^*\bar{D}$ loop and (b) their combined effect; the solid, dotted, and dashed lines represent cutoff values $\alpha = 2, 3$, and 4 , respectively.

For the $\chi_{c0}(1P)$ meson, the mass shift from the $D^*\bar{D}^*$ loop ranges from -4.8 to -16.2 MeV, and the total contribution varies from -32.9 to -57.3 MeV at normal nuclear matter density ρ_0 . The corrected panels (b) and (c) of Fig. 4 are shown here in Figs. 4(b) and 4(c), respectively.

For the $\chi_{c1}(1P)$ meson, the mass shift from either the $D\bar{D}^*$ or $D^*\bar{D}$ loop alone ranges from -19.3 to -37.1 MeV, while the total contribution varies from -32.5 to -56.8 MeV at normal nuclear matter density ρ_0 . The corrected Fig. 5 for the $\chi_{c1}(1P)$ meson mass shift is shown here.

For the comparison of different choices of form factors originally presented in Table III, the corrected values of the mass shift $\Delta M_{\chi_{cJ}}$ are listed in Table III here.

TABLE III. Bold values indicate corrections; original incorrect values are omitted for clarity.

	Hadronic loop	$\alpha = 2$	$\alpha = 3$	$\alpha = 4$
$\Delta M_{\chi_{c0}}$	$D\bar{D}$	$-16.6(-30.2)$	$-26.3(-42.1)$	$-33.8(-50.2)$
	$D^*\bar{D}^*$	$-2.6(-4.8)$	$-6.4(-10.2)$	$-11.3(-16.2)$
	Total	$-18.2(-32.9)$	$-29.3(-47.0)$	$-38.6(-57.3)$
$\Delta M_{\chi_{c1}}$	$D\bar{D}^*$ or $D^*\bar{D}$	$-10.2(-19.3)$	$-17.9(-29.4)$	$-24.5(-37.1)$
	Total	$-17.7(-32.5)$	$-29.0(-46.8)$	$-38.0(-56.8)$
$\Delta M_{\chi_{c2}}$	$D\bar{D}$	$-7.5 \times 10^{-2}(-1.5 \times 10^{-1})$	$-2.1 \times 10^{-1}(-3.1 \times 10^{-1})$	$-3.8 \times 10^{-1}(-5.0 \times 10^{-1})$
	$D^*\bar{D}$ or $D\bar{D}^*$	$-1.4 \times 10^{-1}(-7.8 \times 10^{-2})$	$-3.7 \times 10^{-1}(-1.9 \times 10^{-1})$	$-7.6 \times 10^{-1}(-3.4 \times 10^{-1})$
	$D^*\bar{D}^*$	$-33.8(-60.1)$	$-51.9(-81.8)$	$-65.4(-95.9)$
	Total	$-35.1(-68.9)$	$-51.8(-87.2)$	$-64.3(-99.5)$

The physical conclusions of the paper remain unchanged.

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