Erratum: Asymmetric nuclear matter in a parity doublet model with hidden local symmetry [Phys. Rev. C **92**, 025201 (2015)]

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We found some numerical errors in our computation. In addition, we changed the input of the pion decay constant from 93 to 92.3 MeV. From these modifications, our numerical results in Tables I, II, IV–VI, and Figs. 1–5 should be corrected. Furthermore, we correct a typographical error in Eq. (2.12). However, our findings shown in the abstract are intact: E.g., our model reproduces the properties of normal nuclear matter (binding energy, saturation density, incompressibility, and symmetry energy).

Equation (2.12) should be read as

$$M = \xi_L^\dagger \sigma \xi_R = \sigma \xi_L^\dagger \xi_R = \sigma U. \quad (2.12)$$

Below we show corrected tables and figures together with corrections to the main text if any.

TABLE I. Determined model parameters for given m_0 . Here $m_\omega = 783$, $m_\rho = 776$ MeV, and $\bar{m}\epsilon = m_\pi^2 f_\pi$.

m_0 (MeV)	500	600	700	800	900
g_1	9.03	8.49	7.82	7.00	5.97
g_2	15.49	14.95	14.28	13.45	12.43
$g_{\omega NN}$	6.75	6.60	6.22	5.34	3.49
$g_{\rho NN}$	8.19	8.20	8.24	8.32	8.43
$\bar{\mu}^2/f_\pi^2$	73.5	50.7	30.8	14.9	1.74
λ	139	95.9	58.8	29.4	5.00
$\lambda_6 f_\pi^2$	62.9	42.9	25.7	12.2	0.952

TABLE V. Critical values of the baryon chemical potential μ_B^c at $T = 0$ and $\mu_I = 0$ MeV.

m_0 (MeV)	$\mu_{B_{lg}}^c$ (MeV)	$\rho_{B_{lg}}^c$ (fm $^{-3}$)	$\mu_{B_\chi}^c$ (MeV)	$\rho_{B_\chi}^c$ (fm $^{-3}$)
900	923	0.16	1532	2.97
800	923	0.16	1580	1.77
700	923	0.16	1412	1.19
600	923	0.16	1220	0.89
500	923	0.16	1055	0.72

TABLE II. Physical inputs in vacuum (MeV).

m_+	m_-	m_ω	m_ρ	f_π	m_π
939	1535	783	776	92.3	140

TABLE IV. Predicted values of the slope parameter for $m_0 = 500$ –900 MeV.

m_0 (MeV)	L (MeV)
900	80.1
800	81.1
700	81.8
600	82.2
500	82.4

TABLE VI. Critical values of the baryon chemical potential and density at $T = 0$ and $\mu_I = 100$ MeV.

m_0 (MeV)	$\mu_{B_{lg}}^c$ (MeV)	$\rho_{B_{lg}}^c$ (fm $^{-3}$)	$\mu_{B_\chi}^c$ (MeV)	$\rho_{B_\chi}^c$ (fm $^{-3}$)
900	892	0.0	1530	2.97
800	890	0.0	1578	1.77
700	889	0.0	1408	1.19
600	889	0.0	1214	0.88
500	889	0.0	1045	0.70

Associated with the modification in Fig. 2, “ $\mu_B \sim 1300$ MeV” that appears in the seventh paragraph of Sec. IV should read “ $\mu_B \sim 1050$ MeV.”

Associated with the modification in Fig. 4, in the second paragraph of Sec. V, the text “(blue solid line)” and “(red solid line)” should be deleted, and “the green dashed line” should read as “the dashed line.”

Associated with the modification in Fig. 5, the last sentence of the fifth paragraph in Sec. V, “As expected, the nature of the liquid-gas transitions does not change, while the first-order chiral phase transition becomes second order.” should be read as “As expected, the nature of the liquid-gas transitions does not change, whereas the order of the chiral phase transition is changed.”

Associated with the modification in Table V, the values in the first and second sentences of the seventh paragraph in Sec. V are changed as follows: “ $17\rho_0$ ” to $18.5\rho_0$ and “ $3\rho_0$ ” to $4.5\rho_0$.

FIG. 1. (a) Density dependence of the binding energy. (b) The pressure for $m_0 = 500$ MeV. ρ_B is the baryon number density, and ρ_n is the neutron number density: $\rho_n/\rho_B = 0.5$ implies symmetric nuclear matter, and $\rho_n/\rho_B = 1$ implies pure neutron matter.

FIG. 2. (a) Baryon number chemical potential dependence of σ_0 . (b) Chemical potential dependence of ρ_B for $m_0 = 500$ and $\mu_l = 0$ MeV.

FIG. 3. Density dependence of the effective nucleon masses for $m_0 = 500$ MeV at $\mu_l = 0$ MeV.

FIG. 4. Phase diagrams for $m_0 = 900$ MeV at (a) $\mu_I = 0$ MeV and (b) $\mu_I = 100$ MeV. The solid line is for the first-order phase transition, the dashed line is for the crossover, and the point is for the critical point (second order).

FIG. 5. Phase diagrams for $m_0 = 500$ MeV.