Erratum: Coexistence of topological and nontopological Fermi-superfluid phases [Phys. Rev. Research 3, 043201 (2021)]

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We have discovered that the expression for $\mathcal{E}_{\rm gs}^{(\rm w)}$ given in Eq. (A2) from our article does not contain all the terms that are relevant at the envisioned level of approximation. It should read

$$\begin{aligned}\mathcal{E}_{\rm gs}^{(\rm w)}(|\Delta|,\mu) = \frac{n}{4E_{\rm F}}\Bigg\{ & |\Delta|^2\left[\ln\frac{h+\sqrt{h^2-|\Delta|^2}}{E_{\rm b}} - \frac{1}{2}\right] - h\sqrt{h^2-|\Delta|^2} - \mu^2 - 2h\mu \\ & - \frac{\lambda^2 k_{\rm F}^2}{hE_{\rm F}}\left[\frac{(\mu+h)^2}{2} + \mu(\sqrt{h^2-|\Delta|^2}-h) + 2|\Delta|^2\left(\frac{3}{4} + \frac{\mu}{\sqrt{h^2-|\Delta|^2}}\right)\right] \\ & + \frac{\lambda^2 k_{\rm F}^2}{hE_{\rm F}}\frac{|\Delta|^2}{2}\Bigg[\left(1+\frac{\mu}{\sqrt{h^2-|\Delta|^2}}\right)\ln\frac{\lambda k_{\rm F}|\Delta|}{E_{\rm F}^2} \\ & + \left(1-\frac{\mu}{\sqrt{h^2-|\Delta|^2}}\right)\ln\frac{2\sqrt{h^2-|\Delta|^2}}{\sqrt{h^2-|\Delta|^2}-\mu} \\ & + \left(1+\frac{\mu}{\sqrt{h^2-|\Delta|^2}}\right)\ln\frac{E_{\rm F}^{3/2}}{\sqrt{(h^2-|\Delta|^2)(\mu+\sqrt{h^2-|\Delta|^2})}}\Bigg]\Bigg\}. \end{aligned} \tag{A2}$$

Using the more accurate expression for $\mathcal{E}_{\rm gs}^{(\rm w)}(|\Delta|,\mu)$ given above to determine $|\Delta_{\rm w}|$ via Eq. (A3) from our article yields

$$|\Delta_{\rm w}| \approx {\rm e}^{5/2}\frac{{\rm e}^{-\left[\frac{2E_{\rm F}}{h+\mu}\ln\left(\frac{2h}{E_{\rm b}}\right)\right]\frac{h^2}{\lambda^2 k_{\rm F}^2}}}{\lambda k_{\rm F}/h}\,\frac{\sqrt{E_{\rm F}(\mu+h)}}{{\rm e}^{\frac{h-\mu}{h+\mu}\ln\left(\frac{2h}{h-\mu}\right)}}, \tag{11c}$$

correcting Eq. (11c) from our article by a factor of e^2.

Panels (c) and (d) of Fig. 4 in the article show a comparison between numerically obtained exact values for the pair-potential magnitudes $|\Delta_{\rm s}|$ and $|\Delta_{\rm w}|$ with the approximate analytical expressions given in Eqs. (11b) and (11c) from the article. Figure 1 below shows the same comparison when the corrected form of Eq. (11c) for $|\Delta_{\rm w}|$ from above is plotted. The new analytical formula (11c) is seen to yield better agreement with the numerical results for $|\Delta_{\rm w}|$. No other modifications to results presented in the article are needed, and our conclusions remain unchanged.

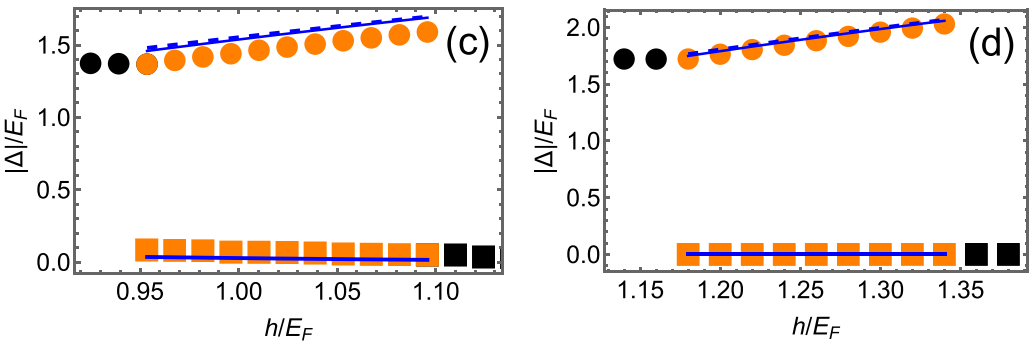

FIG. 1. Panels (c) and (d) from Fig. 4 in the article, replotted using the corrected Eq. (11c) above as the approximate analytical expression for the pair-potential magnitude $|\Delta_w|$.