There is an error in appendix A, where we have provided supplementally a general form of the self-energy in the Nambu representation. Although it does not change any other results of the paper, we would like to give a correction in the following. Equation (A.9) must be replaced by
\[
\Sigma(i\omega_n) = a_0(i\omega_n) i\omega_n 1 + a_3(i\omega_n) \xi_3 \tau_3 + \Sigma_\perp(i\omega_n),
\]
(1)
and
\[
\left\{ \Sigma_\perp(i\omega_n) \right\}_{\alpha\delta} = \frac{1}{\beta} \sum_{i\omega_m} \sum_{\lambda,\rho} a_{\alpha\delta;\lambda\rho}(i\omega_n, i\omega_m) \left\{ \frac{\Gamma_L \Delta_L}{\sqrt{\omega_m^2 + |\Delta_L|^2}} + \frac{\Gamma_R \Delta_R}{\sqrt{\omega_m^2 + |\Delta_R|^2}} \right\}_{\rho\lambda}.
\]
(2)
The kernel \(a_{\alpha\delta;\lambda\rho}(i\omega_n, i\omega_m)\) for the off diagonal part of the self-energy \(\Sigma_\perp(i\omega_n)\) can be expressed in the form,
\[
a_{\alpha\delta;\lambda\rho}(i\omega_n, i\omega_m) = \sum_{\mu_4} \sum_{\mu_2, \mu_3} \left\{ \tau_3 \right\}_{\alpha\mu_4} \Gamma_{\mu_4;\mu_2,\mu_3}(i\omega_n, i\omega_m) \{ \frac{G(i\omega_m) \tau_3}{\Gamma_{\mu_3,\rho}} \} \{ \frac{G(i\omega_m)}{\Gamma_{\mu_2}} \},
\]
(3)
Here, \(\Gamma_{\mu_4\mu_1;\mu_2\mu_3}(i\omega_4, i\omega_1; i\omega_2, i\omega_3)\) is the vertex function in the Nambu representation, and \(\mu_j\) \((j = 1, 2, 3, 4)\) represents the component of the pseudo spins (see figure 1). This expression has been derived using a Ward–Takahashi identity. From equation (2), it is deduced that \(\Sigma_\perp(i\omega_n)\) vanishes when \(\Gamma_R = \Gamma_L, |\Delta_R| = |\Delta_L|\), and the phase difference \(\phi\) between the two gaps is equal to \(\pi\). Thus, equation (A.10) and the discussions given there remain unchanged. We are grateful to V Meden for drawing our attention to this point.

![Figure 1. Vertex correction \(\Gamma_{\mu_4\mu_1,\mu_2\mu_3}(i\omega_4, i\omega_1; i\omega_2, i\omega_3)\).](image-url)