# Erratum: Topological field theory of time-reversal invariant insulators [Phys. Rev. B 78, 195424 (2008)]

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(Received 21 March 2010; published 6 April 2010)

DOI: 10.1103/PhysRevB.81.159901 PACS number(s): 73.43.−f, 78.20.−e, 78.20.Ls, 03.65.Vf, 99.10.Cd

There are several misprinted formulae in the paper, as listed in the following. None of the corrections change any conclusions of the article.

There is a misprint in Eq. (20) which should read

$$J_x(\theta) = G(\theta)\frac{d\theta}{dt}$$

$$G(\theta) = \lim_{\omega\to 0}\frac{i}{\omega}Q(\omega + i\delta;\theta)$$

$$Q(i\omega_n;\theta) = -\sum_{k_x,i\nu_m}\mathrm{tr}\left(J_x(k_x;\theta)G_{1\mathrm{D}}(k_x,i(\nu_m+\omega_n);\theta)\cdot\frac{\partial h(k_x;\theta)}{\partial\theta}G_{1\mathrm{D}}(k_x,i\nu_m;\theta)\right)\frac{1}{L_x\beta}. \tag{20}$$

There is a misprint in the paragraph immediately following Eq. (20). It should read: "Similar to Eq. (4) of the 2D case, the response coefficient $G(\theta)$ can be expressed…."

There is a misprint in Eq. (31) in the manuscript which should read

$$j_\mu = -\frac{1}{2\pi}\epsilon_{\mu\nu}\partial_\nu\theta. \tag{31}$$

There is a misprint in Eq. (67) which should read

$$C_2(m) = \begin{cases} 0, & m < -4c \text{ or } m > 4c \\ 1, & -4c < m < -2c \\ -3, & -2c < m < 0 \\ 3, & 0 < m < 2c \\ -1, & 2c < m < 4c \end{cases}. \tag{67}$$

There are misprints in Eqs. (78) and (79), and the equation after Eq. (79) (10 lines below) which should read

$$\mathcal{K}^A = \frac{1}{16\pi^2}\epsilon^{ABCD}\mathrm{Tr}\left[\left(f_{BC} - \frac{i}{3}[a_B,a_C]\right)\cdot a_D\right], \tag{78}$$

$$P_3(\theta_0) = \int d^3k\mathcal{K}^\theta = \frac{1}{16\pi^2}\int d^3k\epsilon^{\theta ijk}\mathrm{Tr}\left[\left(f_{ij} - \frac{i}{3}[a_i,a_j]\right)\cdot a_k\right].$$

$$\Delta P_3 = \frac{1}{24\pi^2}\int d^3k\epsilon^{\theta ijk}\mathrm{Tr}[(u^{-1}\partial_i u)(u^{-1}\partial_j u)(u^{-1}\partial_k u)], \tag{79}$$

respectively.

There is a misprint in the equation after Eq. (81) (8 lines below) which should read

$$j^\mu = \frac{\partial_z P_3}{2\pi}\epsilon^{\mu\nu\rho}\partial_\nu A_\rho, \quad \mu,\nu,\rho = t,x,y$$

There is a misprint and the second equation after Eq. (91) (21 lines below) which should read

$$2P_3 = \frac{1}{24\pi^2}\int d^3k\epsilon^{ijk}\mathrm{Tr}[(U\partial_i U^\dagger)(U\partial_j U^\dagger)(U\partial_k U^\dagger)] \in \mathbb{Z}.$$

There is a misprint in the equation after Eq. (112) (2 lines below) which should read

 

$$-\mathcal{K}^{\theta}=-\frac{1}{16\pi^2}\epsilon^{ij}\mathrm{Tr}\left[\left(f_{ij}-\frac{i}{3}[a_i,a_j]\right)\cdot a_{\varphi}-2\left(f_{i\varphi}-\frac{i}{3}[a_i,a_{\varphi}]\right)\cdot a_j\right],$$

There is a misprint in Eq. (118) which should read

$$j^{\mu}=\frac{1}{8\pi}\epsilon^{\mu\nu\tau}\hat{\mathbf{n}}\cdot\partial_{\nu}\hat{\mathbf{n}}\times\partial_{\tau}\hat{\mathbf{n}} \tag{118}$$

There is a misprint in the second equation after Eq. (134) (25 lines below) which should read

$$\mathrm{CS}_5^0=\frac{1}{3!(2\pi)^2}\int d^5q\,\epsilon^{ABCDE}\mathrm{Tr}\left[a_A\partial_B a_C\partial_D a_E+i\frac{3}{2}a_A a_B a_C\partial_D a_E-\frac{3}{5}a_A a_B a_C a_D a_E\right]$$

There is a misprint in line 9 of Table II: $\alpha_i$ should be replaced by $a_i$.