

SU(2)xU(1) unified theory for charge, orbit and spin currents

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Corrigendum

$SU(2) \times U(1)$ unified theory for charge, orbit and spin currents

Pei-Qing Jin, You-Quan Li, and Fu-Chun Zhang 2006 *J. Phys. A: Math. Gen.* **39** 7115–7123

We omitted some terms in equation (26), which should read

$$\mathbb{B}_3 = -\frac{2m}{\eta\hbar} \left[\left(\partial_1\alpha + \partial_2\beta - \frac{2m}{\hbar}(\alpha x - \beta y)\gamma \right) \tau^1 + \left(\partial_2\alpha + \partial_1\beta - \frac{2m}{\hbar}(\alpha y - \beta x)\gamma \right) \tau^2 + \left(\frac{2m}{\hbar}(\alpha^2 - \beta^2) + 2\gamma \right) \tau^3 \right]. \quad (26)$$

Then, the next two equations, (27) and (28), should be replaced by

$$\begin{aligned} f_1 &= \frac{2\mu_B}{\eta} \vec{\sigma} \cdot \partial_1 \vec{B} - \frac{4m\mu_B}{\eta\hbar} [\beta(\vec{\sigma} \times \vec{B})_1 + \alpha(\vec{\sigma} \times \vec{B})_2 + \gamma y(\vec{\sigma} \times \vec{B})_3] \\ &\quad - J_2^1 \mathcal{B}_3^1 - J_2^2 \mathcal{B}_3^2 - J_2^3 \mathcal{B}_3^3, \\ f_2 &= \frac{2\mu_B}{\eta} \vec{\sigma} \cdot \partial_2 \vec{B} + \frac{4m\mu_B}{\eta\hbar} [\alpha(\vec{\sigma} \times \vec{B})_1 + \beta(\vec{\sigma} \times \vec{B})_2 + \gamma x(\vec{\sigma} \times \vec{B})_3] \\ &\quad + J_1^1 \mathcal{B}_3^1 + J_1^2 \mathcal{B}_3^2 + J_1^3 \mathcal{B}_3^3, \\ f_3 &= \frac{2\mu_B}{\eta} \vec{\sigma} \cdot \partial_3 \vec{B} \end{aligned} \quad (27)$$

and

$$\begin{aligned} f_1 &= -\frac{4m^2}{\eta\hbar^2} (\beta^2 - \alpha^2) J_2^3, \\ f_2 &= \frac{4m^2}{\eta\hbar^2} (\beta^2 - \alpha^2) J_1^3, \\ f_3 &= 0. \end{aligned} \quad (28)$$

These corrections do not affect the analysis and result of the original paper.