Erratum: Geometric effects resulting from square and circular confinements for a particle constrained to a space curve [Phys. Rev. A **97, 042108 (2018)]**

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In our recently published paper there were typographical errors appearing in Eqs. (5), (6), (16), (23), (30), and (32). That is $f^{-(1/2)}$ was mistakenly typed as $f^{1/2}$, and $f^{1/2}$ was mistakenly typed as $f^{-(1/2)}$. Under rescaled transformation, an introduced new wave function χ and a physical operator $\hat{F}$, using the rescaled factor f , can be expressed as [1]

$$\chi = f^{1/2}\psi,$$

and

$$\hat{F}' = f^{1/2}\hat{F}f^{-(1/2)}.$$

Equation (5) and its related expression are to be corrected. In the spirit of the confining potential formalism, for a particle confined to a space curve, the effective form of $\hat{F}$ can be determined by

$$\hat{F}_{\text{eff}} = \lim_{q_N \rightarrow 0} (\hat{F} f^{-(1/2)}) - \hat{F}_N = \lim_{q_N \rightarrow 0} (1\hat{F} f^{-(1/2)}) - \hat{F}_N = \lim_{q_N \rightarrow 0} (f^{1/2}\hat{F} f^{-(1/2)}) - \hat{F}_N. \quad (5)$$

Following the first equality, $f^{-(1/2)}$ is from the relationship $\psi = f^{-(1/2)}\chi$, which is determined by the normalization condition $\int ds dq_2 dq_3 \sqrt{g} |f^{1/2}\psi|^2 = \int ds dq_2 dq_3 \sqrt{g} |\chi|^2 = 1$. Here $\lim_{q_N \rightarrow 0} f^{1/2} = 1$ is considered. Equation (6) should read

$$\hat{F}_{\text{eff}} = \lim_{\varepsilon_c \rightarrow 0} \langle \chi_{0,c} | f^{1/2}\hat{F} f^{-(1/2)} - \hat{F}_N | \chi_{0,c} \rangle = \langle \chi_{0,c} | f^{1/2}\hat{F} f^{-(1/2)} - \hat{F}_N | \chi_{0,c} \rangle_0, \quad (6)$$

Eq. (16) should be

$$\begin{aligned} \hat{H}_{\text{eff}} &= \langle \chi_{0_n,0_b} | f^{1/2}\hat{H}_V f^{-(1/2)} - \hat{H}_N | \chi_{0_n,0_b} \rangle_0 \\ &= \lim_{w \rightarrow \infty} \langle \chi_{0_n,0_b} | f^{1/2}\hat{H}_V f^{-(1/2)} - \hat{H}_N | \chi_{0_n,0_b} \rangle \\ &= \frac{1}{2m} \hat{p}_s^2 - \frac{\hbar^2}{8m} \kappa^2 - \frac{\hbar^2}{4m} \tau^2, \end{aligned} \quad (16)$$

Eq. (23) as

$$\hat{H}_{\text{eff}} = \langle \chi_{0,l} | f^{1/2}\hat{H}_V f^{-(1/2)} - \hat{H}_N | \chi_{0,l} \rangle_0 = \frac{1}{2m} (\hat{p}_s - l\hbar\tau)^2 - \frac{\hbar^2}{8m} \kappa^2, \quad (23)$$

Eq. (30) as

$$\vec{p}_{\text{eff}} = \langle \chi_{0_n,0_b} | f^{1/2}\vec{p} f^{-(1/2)} - \vec{p}_N | \chi_{0_n,0_b} \rangle_0 = \vec{p}_s + \vec{p}_g = -i\hbar(\vec{t}\partial_s - \frac{1}{2}\kappa\vec{n}), \quad (30)$$

and Eq. (32) as

$$\vec{p}_{\text{eff}} = \langle \chi_{0,l} | f^{1/2}\vec{p} f^{-(1/2)} - \vec{p}_N | \chi_{0,l} \rangle_0 = \vec{p}_s. \quad (32)$$

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[1] P. C. Schuster and R. L. Jaffe, *Ann. Phys. (NY)* **307**, 132 (2003).