ERRATA

Erratum to: “Renormalization of the Lorentz–Abraham–Dirac Equation for Radiation Reaction Force in Classical Electrodynamics” [*Journal of Experimental and Theoretical Physics* 109, 207 (2009)]

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1. The typos are found. Equation (5) should read (without the factor of c by $m_n \dot{x}$ term):

$$p^i = p_{\text{em}}^i + m_n \dot{x} = m \dot{x} - m(\dot{x})_{\text{rad}}^i$$

In Section 6 the conservation law for generalized momentum should read:

$$(\mathbf{n} \cdot \dot{\mathbf{P}}) = -(\mathbf{n} \cdot \dot{\mathbf{p}}_{\text{rad}}) \neq 0$$

(in the published version the last inequality reads as equation). In Eqs. (26) the dimensional factors are lost, they should read similarly to Eqs. (24):

$$\begin{aligned} \frac{E_{\text{rad}}}{mc^2} &= \tau_0 \omega_E \sinh(\omega_E \tau), \\ \frac{(p_x)_{\text{rad}}}{mc} &= \tau_0 \omega_E [\cosh(\omega_E \tau) - 1]. \end{aligned} \quad (26)$$

2. At the beginning of Section 10, please, add a clarification as a footnote in the following way: “the limit on field strength required for the applicability of a classical treatment implies a small deviation from identity (3),

$$\frac{\hbar^2 |f_L^2|}{m^2 c^2} \ll m^2 c^4, \quad c^2 \left(1 - \frac{1}{137^2}\right) < \dot{x}^2 \leq c^2$$

(which rules out any superluminal paradox).”¹

¹ Indeed, $f_L^2 < 0$ and, using the first inequality, we find:

$$\dot{x}^2 = c^2 + \tau_0^2 f_L^2 / m^2 = c^2 - \frac{4}{9} \left(\frac{e^2}{\hbar c} \right)^2 \frac{\hbar^2 |f_L^2|}{m^4 c^4} > c^2 \left(1 - \frac{1}{137^2}\right) > 0$$

and $\dot{x}^2 \leq c^2$. On the other hand, “the superluminal paradox” with $(dx/dt)^2 > c^2$ would be possible only if $\dot{x}^2 < 0$, because $\dot{x}^2 \equiv [c^2 - (dx/dt)^2](dt/d\tau)^2$ and $(dt/d\tau)^2 > 0$.