*Erratum***Approximate Normalized Wave Functions for the Finite-Size Coulomb Problem**

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Section III contains several errors. A typographical error occurs in the bracketted quantity in (38), which should read $(2/t^2 + 1/t^4)$. Equation (42) contains a serious error in the second term. It should read

$$f(x) = \frac{4}{35x} + \frac{2x}{15} - \frac{1}{3x} \int_1^\infty \frac{du}{u^4} (u^2 - 1)^{\frac{1}{2}} (2/u^2 + 1/u^4) e^{-xu}$$

$$\cong \frac{5\pi}{96} + \frac{\pi x^2}{32}. \quad (42)$$

Equation (43) then reads

$$\Delta E_{\nu P}^e = -\frac{4Z\alpha^2 |\phi_n(0)|^2}{15m^2}$$

$$\cdot \left(1 - \frac{15\pi}{16} Z\alpha\mu m \langle r^2 \rangle_{(2)} - \frac{25Z\alpha\mu\pi}{64m} + \dots \right) \quad (43)$$

Neglecting finite size in the wave functions alone would replace $\langle r^2 \rangle_{(2)}$ by $\langle r^2 \rangle$. Furthermore, $\langle r^2 \rangle_{(2)} \equiv 2\langle r^2 \rangle$ for spherical distributions. Thus, the electronic vacuum polarization finite size correction for electronic atoms is of relative order $Z\alpha m^2 \langle r^2 \rangle$, neglecting reduced mass effects. This is quite tiny for H , since $m^2 \langle r^2 \rangle$ is smaller than α^2 .

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