

Erratum to: Density Functional Theory

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E. Engel, R.M. Dreizler, *Density of Functional Theory*, Theoretical and Mathematical Physics, DOI 10.1007/978-3-642-14090-7

Equation (2.91) on page 31 should read

$$\|fg\|_1 \leq \|f\|_p \|g\|_q \quad \text{with} \quad \frac{1}{p} + \frac{1}{q} = 1$$

$$\Rightarrow \|nv_{\text{ext}}\|_1 \leq \|n\|_3 \|v_{\text{ext}}\|_{3/2} < \infty.$$

Equation (D.9) on page 438 should read

$$n_0 = \sum_{i=1}^{\infty} \Theta(\varepsilon_F - \varepsilon_i) \sum_{\sigma=\uparrow,\downarrow} \phi_i^*(\mathbf{r}\sigma) \phi_i(\mathbf{r}\sigma)$$

$$= \sum_{\alpha_1, \alpha_2, \alpha_3 = -\infty}^{\infty} \Theta(\varepsilon_F - \varepsilon_k) \sum_{\sigma=\uparrow,\downarrow} \phi_{k\sigma}^*(\mathbf{r}\sigma) \phi_{k\sigma}(\mathbf{r}\sigma)$$

$$= \sum_{\alpha_1, \alpha_2, \alpha_3 = -\infty}^{\infty} \Theta\left(\varepsilon_F - \frac{\hbar^2 \mathbf{k}^2}{2m}\right) \frac{2}{L^3}.$$

Equation (D.10) on pages 438, 439 should read

$$\frac{T_S(V)}{V} = \frac{1}{V} \sum_{i=1}^{\infty} \Theta(\varepsilon_F - \varepsilon_i) \sum_{\sigma=\uparrow,\downarrow} \int_V d^3r \phi_i^*(\mathbf{r}\sigma) \frac{-\hbar^2 \nabla^2}{2m} \phi_i(\mathbf{r}\sigma)$$

$$= \frac{1}{L^3} \sum_{\alpha_1, \alpha_2, \alpha_3 = -\infty}^{\infty} \Theta(\varepsilon_F - \varepsilon_k) \sum_{\sigma=\uparrow,\downarrow} \int_0^L dx \int_0^L dy \int_0^L dz \phi_{k\sigma}^*(\mathbf{r}\sigma) \frac{\hbar^2 \mathbf{k}^2}{2m} \phi_{k\sigma}(\mathbf{r}\sigma)$$

$$= \sum_{\alpha_1, \alpha_2, \alpha_3 = -\infty}^{\infty} \Theta\left(\varepsilon_F - \frac{\hbar^2 \mathbf{k}^2}{2m}\right) \frac{2}{L^3} \frac{\hbar^2 \mathbf{k}^2}{2m}.$$

Equation (D.11) on page 439 should read

$$\Delta k_i = \frac{2\pi}{L} \Delta \alpha_i \Rightarrow \Delta \alpha_1 \Delta \alpha_2 \Delta \alpha_3 = \left(\frac{L}{2\pi}\right)^3 \Delta^3 k$$
$$\sum_{\alpha_1, \alpha_2, \alpha_3 = -\infty}^{\infty} \xrightarrow{L \rightarrow \infty} \left(\frac{L}{2\pi}\right)^3 \int d^3 k.$$