Known misprints in Equilibrium Statistical Physics

L. M. Sander

May 1, 2014

As of 5/01/14:

1. Equation 1.10: the magnetic moment, μ is a vector, even though it isn't marked as one. Consider it to be $\vec{\mu}$.

2. Chapter 1 problem 2: there should be a thermal average of the potential thus:

$$\frac{1}{2}\sum_{i,j} < \phi(|\mathbf{r}_i - \mathbf{r}_j| >$$

3. Chapter 3, after Equation 3.10: the volume of an n-sphere is:

$$\mathbb{V} = C_d R^d$$

4. Chapter 3, Equation 3.11 should read:

$$\mathsf{W} = \frac{\Delta V^N}{h^{3N} N!} \frac{(2m\pi E)^{3N/2}}{E(3N/2-1)!}$$

5. Chapter 3 Eq. 3.61: $S_\circ$ accounts for other degrees of freedom, and can be a function of energy.

6. Chapter 3, problem 6:

$$TdS = C_v dT + T\left(\frac{\partial p}{\partial T}\right)_V dV$$

$$TdS = C_p dT + T\left(\frac{\partial V}{\partial T}\right)_p dp$$

7. Chapter 3, problem 9: $E = -NJ\tanh(J/k_BT)$

8. Chapter 4, Equation 4.3: The $N!$ is the number of indistinguishable particles in the system. If there are several species with numbers $N_1, N_2, \ldots$ then the factor is $\prod_i N_i!$.

9. Chapter 4, Figure 4.1: The y-axis should be $C_v/3NK_BT$.

10. Chapter 4, Section 4.4.1: Step 1:

    For a classical system with $3N$ generalized coordinates, q and their corresponding momenta, p calculate:

11. Chapter 4, Equation 4.45:First line $p = nk_BT(1 + [b - a/k_BT]n)$

12. Chapter 5, Section 5.3: Step 5:

    ... in a classical system with $3N$ generalized coordinates, q and their corresponding momenta, p calculate:

13. Chapter 5, above Equation 5.19: $g = \lambda^3/k_BT$

14. Chapter 6, Section 6.1.4: The first equation should read:

$$\langle n_i \rangle = \frac{g}{e^{\beta(\epsilon_i - \mu)} + 1} \rightarrow g e^{\beta\mu} e^{-\beta\epsilon_i}$$

15. Chapter 6, Figure 6.7: The slope of the dashed gray line ...

16. Chapter 6, problem 5 should read: $s/k_B = (d + 1) \ldots$.