

# Interacting Einstein Solids

Thermodynamics

Winter 2025

College of the Atlantic.

1. Suppose solid B ( $N_B = 200$ ) has 100 units of energy and is brought into contact with solid A ( $N_A = 100$ ), which has 0 units of energy. A little while later, how likely are you to find the system in the  $q_A = 60, q_B = 40$  macrostate?
2. Suppose solid B has 40 units of energy and is brought into contact with solid A, which has 60 units of energy. A little while later, how likely are you to find the system in the  $q_A = 0, q_B = 100$  macrostate?
3. Try using the multiplicity formula to verify the value of  $\Omega_{\text{all}} = 9.3 \times 10^{115}$ .

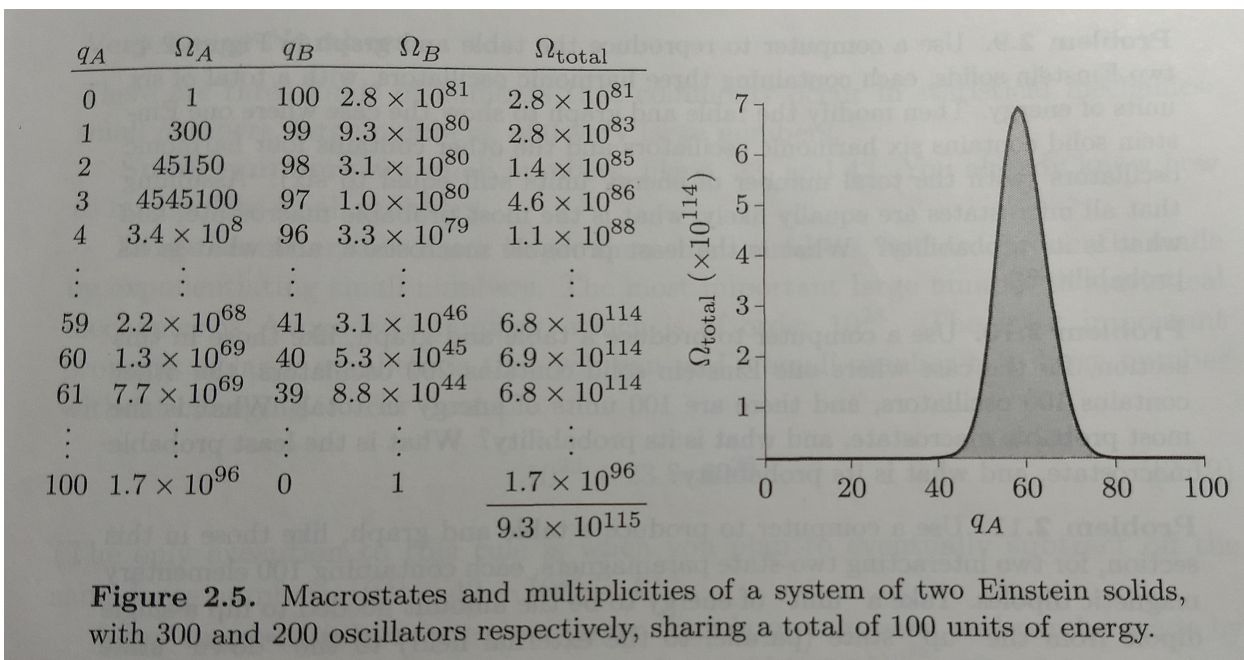


Figure 1: Figure from Daniel V. Schroeder, *Thermal Physics*, Addison Wesley, 2000.