

24. Using Eq. 40-20 (see also problem 27 in Chapter 40) we find that the lowest four levels of the rectangular corral (with this specific “aspect ratio”) are non-degenerate, with energies $E_{1,1} = 1.25$, $E_{1,2} = 2.00$, $E_{1,3} = 3.25$, and $E_{2,1} = 4.25$ (all of these understood to be in “units” of $\hbar^2/8mL^2$). Therefore, obeying the Pauli principle, we have

$$E_{\text{ground}} = 2E_{1,1} + 2E_{1,2} + 2E_{1,3} + E_{2,1} = 2(1.25) + 2(2.00) + 2(3.25) + 4.25$$

which means (putting the “unit” factor back in) that the lowest possible energy of the system is $E_{\text{ground}} = 17.25(\hbar^2/8mL^2)$.