Chapter 45   Quantum Mechanics in 3 D (Examples) (SM08)

Example 1: Calculate the momentum and energy for a particle that is trapped in an infinitely deep 3 dimensional potential well. The well has sides of length, Lx, Ly and Lz and the potential inside the well is zero.

Example 2: What is the ground state energy for the hydrogen electron? R(r) = A exp (- br)

Example 3: Normalize the wave function for the ground state hydrogen electron. R(r) = A exp (- br)

Example 4: At what distance from the nucleus are you most likely to find the ground state electron? R(r) = A exp (- br)

Example 5: What is the ground state electron's average distance from the hydrogen nucleus? R(r) = A exp (- br)

Example 6: Calculate the probability that the ground state electron of a hydrogen atom will be found between the center of the nucleus and its most probable location. R(r) = A exp (- br)