Que. : Estimate the minimum kinetic energy of non-relativistic electron confirmed in a region of width L=0.1nm?

Answer:

- $\triangle x = L/2 = 10^{-10}m./2$
- $\triangle p . \triangle x \geq \hbar/2$
- $\triangle p$ minimum $= \hbar * 2/2 * 10^{10}$
- P minimum $= \triangle p$ minimum.
- K.E. $= P^2/2m$
- Minimum K.E $= (P \text{ minimum})^2/2m$

$= h^{2*}10^{20} * 4/16 * \pi * 2m$

$= 1.527 * 4 * 10^{-19}$ J

=3.792 eV