

Answer on Question #64157, Chemistry / General Chemistry

If an electron has a wavelength of 1.0 nm, what is its speed (in m/s)?

Solution:

The equation for de Broglie waves use

$$\lambda = h / mv$$

$$v = h / m\lambda$$

$$v = 6.62 \times 10^{-34} \text{ Js} / 9.1 \times 10^{-31} \text{ kg} \times 10^{-9} \text{ m} = 727 \text{ km/s}$$

Answer: 727 km/s

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