

1. Animate wave packets in the following cases using octave/matlab.
(i) $v_g = v_p$ (ii) $v_g > v_p$ (iii) $v_g < v_p$ (iv) $v_g = -v_p$
2. Show that the phase velocity of the de Broglie waves of a particle of rest mass “m” and de Broglie wavelength “ λ ” is given by: $v_p = c \sqrt{1 + \left(\frac{mc\lambda}{h}\right)^2}$.