
Table of contents

Momentum (impetus, movement trigger, excitation, cause for effect):

$$\begin{aligned} p = m \cdot v &\stackrel{!}{=} \sqrt{\left(\frac{E}{c}\right)^2 - (mc)^2} = \sqrt{\left(\frac{\hbar\omega}{c}\right)^2 - (mc)^2} = \\ &\sqrt{\left(\frac{h\nu}{c}\right)^2 - (mc)^2} = \sqrt{\left(\frac{h}{\lambda}\right)^2 - E_{pot}} = \sqrt{(\hbar k)^2 - E_{pot}} \stackrel{rel.}{=} \hbar k \end{aligned} \quad (1)$$