

THE MASS OF PHOTONS

If (c) is defined as the asymptotic limiting maximum Velocity

$$v_{\max} = c = \lim_{m \rightarrow \infty} \lambda v = 2.99792458 \times 10^8 \text{ m/s}$$

where $v = \lambda v$ and since $h = m \lambda^2 v$

then $\lim_{\lambda v \rightarrow c} h = \lim_{\lambda v \rightarrow c} m \lambda^2 v = m \lambda c = h_0 = 6.62606876 \times 10^{-34} \text{ J s}$

and u can be defined as the Unicity $u = m \lambda$

$$\lim_{\lambda v \rightarrow c} u = \lim_{\lambda v \rightarrow c} m \lambda = \lim_{\lambda v \rightarrow c} \frac{m \lambda^2 v}{\lambda v} = \lim_{\lambda v \rightarrow c} \frac{h}{v}$$

then (b) can be defined as the asymptotic limiting minimum Unicity

$$u_{\min} \equiv b = \lim_{\lambda v \rightarrow c} u = \frac{h_0}{c} = 2.21021863 \times 10^{-42} \text{ kg m}$$

so that the mass of a photon is given by

$$m_{\text{photon}} \approx \frac{u}{\lambda} = \frac{h_0}{\lambda c} = \frac{b}{\lambda} \quad \text{where} \quad \lambda = 2\pi r$$

WLIU = $6.509913771 \times 10^{-43} \text{ kg}$	WHBE = $7.129203417 \times 10^{-43} \text{ kg}$
WNPR = $6.568893738 \times 10^{-43} \text{ kg}$	WBEA = $7.497828205 \times 10^{-43} \text{ kg}$
WLNG = $6.790068611 \times 10^{-43} \text{ kg}$	WBAZ = $7.556805172 \times 10^{-43} \text{ kg}$
WEHM = $6.849048577 \times 10^{-43} \text{ kg}$	WMOS = $7.719003079 \times 10^{-43} \text{ kg}$
WHFM = $7.025988476 \times 10^{-43} \text{ kg}$	WLIR = $7.895942977 \times 10^{-43} \text{ kg}$

THE ELECTRIC CHARGE OF EACH OF THE PARTICLES IN A NEUTRAL PAIR OF PHOTONS

$$\mu_0 = \lim_{\lambda v \rightarrow c} \frac{2m \lambda}{q^2} = 1.2566 \times 10^{-6} \text{ kg m/C}^2$$

$$b = \lim_{\lambda v \rightarrow c} u = \frac{h_0}{c} = 2.210218631 \times 10^{-42} \text{ kg m}$$

and the Photon Electric Charge

$$q_{\text{photon}} \approx \lim_{\lambda v \rightarrow c} \sqrt{\frac{2m \lambda}{\mu}} = \sqrt{\frac{2b}{\mu_0}} = \sqrt{\frac{2h_0}{\mu_0 c}} = 1.875545842 \times 10^{-18} \text{ C}$$

which is greater than the Electric Charge on the Electron or Proton by

$$q_{\text{photon}} = (11.70623765) q_{\text{Electron/Proton}}$$

$$G = \frac{\lambda^3 v^2}{2\pi M} \quad h = m \lambda^2 v \quad \varepsilon = \frac{q^2}{2m \lambda^3 v^2} \quad \mu = \frac{2m \lambda}{q^2}$$

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