

155(17) : Equation for Photon Mass due to Gravitational Light Deflection.

$$\Delta\phi = 2 \int_{R_0}^{\infty} \frac{1}{r^2} \left(\frac{1}{R_0^2} - \left(1 - \frac{r_0}{r} \right) \left(\frac{1}{a^2} + \frac{1}{r^2} \right) \right)^{-1/2} dr - \pi \quad (1)$$

where $a = \left(\frac{\hbar \omega}{mc^2} \right) R_0 \quad (2)$

Here ω is the angular frequency ($2\pi f$) of one photon in the visible frequency range, i.e. about 10^{16} radians per second.

m = photon mass

R_0 = distance of closest approach

This corrects Einstein's original calculation of about 1917