

Birth Defect of The Equation $E_{max} = hf - W$

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Abstract Everyone studying photoelectric effect must know this equation

$$E_{max} = hf - W \quad (Eq. 01)$$

where E_{max} is said to represent the maximum kinetic energy that a photoelectron carries when flying across the electrodes, h is the Planck constant, f is the frequency of an incident light, and W is the so-called work function. Based on this equation, a concept called photon, then further called quantum, is firmly rooted in modern physics.

Key Words mathematics, physics

To make Eq. 01 an expression a more accurate statement in physics, let us anchor the physical dimension to each term in this equation while all E , h , f and W are restricted to play the role of pure numerical values. Then we have

$$E_{max}(\text{Joule}) = h(\text{Joule} \cdot \text{second}) \times f(\text{Hz}) - W(\text{Joule}) \quad (\text{Eq. } 02)$$

With term rearrangement, Eq. 02 lets us have

$$\begin{aligned} E_{max}(\text{Joule}) + W(\text{Joule}) &= h(\text{Joule} \cdot \text{second}) \times f(\text{Hz}) \\ (E_{max} + W)(\text{Joule}) &= h(\text{Joule} \cdot \text{second}) \times f\left(\frac{\text{periods}}{\text{second}}\right) \\ (E_{max} + W)(\text{Joule}) &= h \times f(\text{Joule} \cdot \text{periods}) \quad (\text{Eq. } 03) \end{aligned}$$

The equal sign in Eq. 03 must bring out $(E_{max} + W)$ and $(h \times f)$ as two equal numerical values and enable them to cancel out each other. Subsequently Eq. 03 can end up as

$$\text{Joule} = \text{Joule} \cdot \text{periods} \quad (\text{Eq. } 04)$$

or further

$$1 = \text{period}(s) \quad (\text{Eq. } 05)$$

EQ. 05 can earn absolutely no legitimacy as an expression in either the realm of mathematics or the realm of physics.

Sadly, ever since the appearance of the erroneous mathematical work of the theory of special relativity [1] and the concept of photon, modern physics leads us to have entered an era of competition in fairy tale imaginations.

Reference: [1] Speed of Light $C=0$, so "Proven" by Special Relativity, Indisputably! By Cameron Wong, <https://vixra.org/pdf/1912.0453v1.pdf>