The calculation of filamentary photon force and its momentum transition period

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The method of calculating and the amount of corpuscular photon force have been presented in conformity with the below document, by the American Physics Society:

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Abstract Submitted
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DETERMINATION OF THE PHOTON FORCE AND PRESSURE SERGEJ REISSIG, EFBR Research & Development Office Reissig — In [1] the formula for the practical determination of the power of a light particle was derived: $P = hf^2$ (W) (1). For the praxis it is very usefully to define the forces and pressure of the electromagnetic or high temperature heat radiation. The use of the impulse equation $F = \frac{dP}{dt} = \frac{d(mc)}{dt}$ (2) together with the Einstein formula for $E = mc^2$ leads to the following relationship: $F = \frac{1}{c}\frac{d(mc^2)}{dt} = \frac{1}{c}\frac{dE}{dt}$ (3) In [1] was shown: $-\frac{dE}{dt} = P$ (4). With the use the eq. (1), (3), (4) the force value could be finally determinated: $|F| = \frac{hf^2}{c}$ or $|F| = \frac{hc}{\lambda^2} = \frac{E}{\lambda}$ [N]. The pressure of the photon could be calculated with using of the force value and effective area: $p = \frac{F}{A}$ [Pa]. References 1. About the calculation of the photon power. S. Reissig, APS four corners meeting, Arizona, 2003 -www.eps.org/aps/meet/4CF03/baps/abs/S150020.html

☐ Prefer Oral Session
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Now, our suggested method for the calculation of filamentary photon force and finding its relation with the electromagnetic wave frequency, as follows:

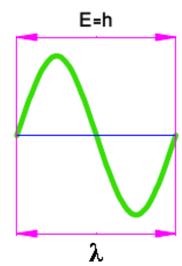
As we know, Energy is equal to the Force multiplied by the Distance, it means:

$$E = F \times d$$

E denotes Energy, F is Force and Distance is referred to by d. As we know, total energy of photon or electromagnetic wave quantum is achieved through the Planck's known relation formula, means:

$$E_p = hf$$

E_p is the photon energy, h is Planck's Constants, and f is the electromagnetic wave frequency. Look at the following figure:



The layout of equations to calculate filamentary photon force could be seen in the first step as:

$$E = F \times d$$
$$E_\lambda = h$$
$$d = \lambda$$
$$h = F_p \times \lambda$$
$$F_p = \frac{h}{\lambda}$$
$$P_p = \frac{h}{\lambda}$$
$$F_p \neq P_p \Rightarrow F_p \neq \frac{h}{\lambda}$$

E_λ is the energy for each cycle equal to h (Planck's Constants), λ is the wavelength, F_p is the filamentary photon force and P_p is the photon's momentum. As it was told in the chapter <u>Particle or stringy photon, one or few-seconds photon, energy packaging in space-time</u>, photon is a quantum filament with the number of f times λ wavelength which can transmit or induce its momentum or total energy to obstacle or balance level entirely and in a lump. So, the equations will be propounded exactly as follows:

$$E = F \times d$$
$$E_p = hf$$
$$d = \lambda$$
$$hf = F_p \times \lambda$$
$$F_p = \frac{hf}{\lambda}$$
$$P_p = \frac{h}{\lambda}$$
$$F_p = \frac{h}{\lambda} f = P_p f$$
$$P_p = \frac{hf}{c}$$
$$F_p = \frac{hf}{c} f = \frac{hf^2}{c}$$

And this is just the same as - but in a new method - previously achieved result, presented by the American Physics Society, which proves more clear and simple that photon or electromagnetic energy quantum is a filament of the wavelengths equal to the wave frequency, like the same matters told in the chapter Particle or stringy photon, one or few-seconds photon, energy packaging in space-time, and the important point that photon is not carrying the forces in electromagnetic field, but is the holder of the force and oscillation energy in an alternative variant electromagnetic field. Since, a static field with no oscillation will have no radiation like waves or photons, and concerning the equations for mass, energy, momentum and photon force while the electromagnetic wave frequency is zero, all the physical components of photon will be zero and simply, there will be no quantum. We can reach the following general conclusion for the filamentary photon force:

$$F_p = P_p f = \frac{hf}{\lambda} = \frac{hf^2}{c} = \frac{E_p}{\lambda} = \frac{m_p c^2}{\lambda} = \frac{hc}{\lambda^2}$$
$$\frac{hf}{\lambda} = \frac{h\frac{c}{\lambda}}{\lambda} = \frac{hc}{\lambda^2}$$

c is the velocity of light and m_p is the photon's mass. The reason for the excessive photon force is that filamentary photon is able to transmit or induce its momentum or energy to the obstacle or balance level, in a very short time. This time duration, is equal to the required time for oscillating an electromagnetic wave cycle. Means:

$$\Delta t = \frac{1}{f}(\text{second})$$

Δt is the time to transmit filamentary photon momentum. Since, the relation between force and momentum is:

$$F = \frac{\Delta P}{\Delta t}$$

ΔP is the amount of transmitted momentum. The relation between the force and filamentary photon momentum will be:

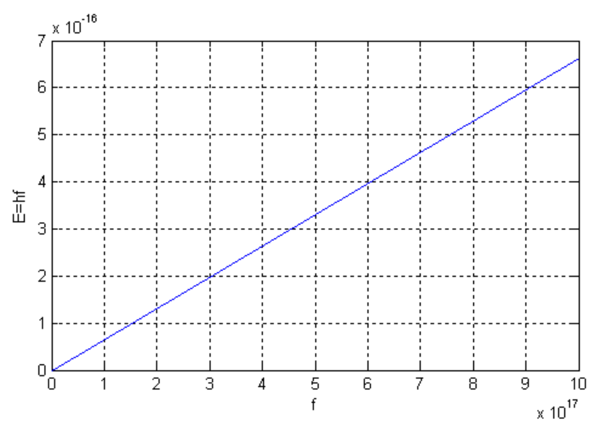
$$F_p = \frac{\Delta P_p}{\Delta t} = \frac{\Delta P_p}{\frac{1}{f}} = \Delta P_p \times f$$

ΔP_p is the amount of transmitted photon's momentum and if all the momentum for the filamentary photon transmitted, we'll surely reach the same results as previous:

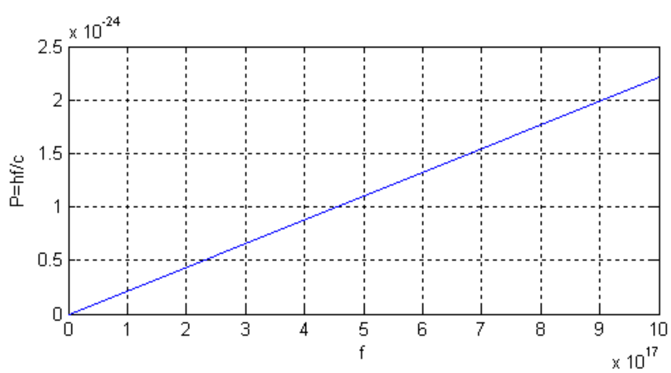
$$F_p = P_p \times f$$

In fact, the force of filamentary photon has direct relations with square root of electromagnetic wave frequency.

The diagram of frequency and filamentary photon energy



The diagram of frequency and filamentary photon momentum



The diagram of frequency and filamentary photon force