The gamma ray

We start with the supposition for electromagnetic waves:
1) The electromagnetic radiation of black-body radiation is in thermal equilibrium.
2) The photons do not interact with one another (the superposition principle), so the radiation may be regarded as a photon gas like an ideal gas.
The distribution of photons among the various quantum states with definite values of the momentum and energies ε = ħ·ω is given by the formula: $n = \frac{1}{e^{\frac{\hbar\omega}{kT}}-1}$ Planck's distribution law of black body for photons of Bose statistics is (according to 63.3) [1]:

$dN_\omega = \frac{V}{\pi^2 c^3}\frac{\omega^2 d\omega}{e^{\frac{\hbar\omega}{kT}}-1}$ (1) where V is the volume of photonic gas. We have, or we can multiply with h·ν to obtain the spectral distribution in the interval ω & ω + dω, so the energy density: $dE\omega = \frac{V\hbar}{\pi^2 c^3}\frac{\omega^3 d\omega}{e^{\frac{\hbar\omega}{kT}}-1}$ (2)

with ω = 2πν and $N(\nu) = \frac{8\pi V\nu^2}{c^3}$ And V is the quanta of photonic gas with cylindrical symmetry of the height of the cylinder is Tq·c, and with radius r_b and area $\pi\cdot r_b^2$ Thus, the volume (V) of photic gas has the value $Tq\cdot c\cdot\pi\cdot r_b^2 = \pi\cdot r_b^3$ => The energy per quanta Tq is: $E_{\nu q} = N(\nu)\cdot U(\nu,T)$
For the unit energy per time quanta per angle unit, where U(ν, T) (or < E >) is the internal energy $U(\nu,T) = \frac{E_\nu}{e^{\frac{E_\nu}{kT}}-1}$ written and $\frac{8\pi\nu^2}{c^3}$ Is the number of states of the oscillators times the volume of photonics gas $T_q\cdot c\cdot\pi\cdot r_B^2$. Where $r_B = c/T_q$
Thus, *we suppose that the differential energy quanta for a photon* with velocity "c", period of oscillations t_0, and the sum of infinitesimal value t=1/ν for Tq (quanta => Tq = $1.765\cdot 10^{-19}$ sec) is:

$$E_\nu = \frac{1}{T_q^2}\cdot diff\left(\frac{T_q\cdot c\cdot r_B^2\cdot 8\cdot\pi^2\cdot\nu^2}{c^3}\frac{E_\nu}{e^{\frac{E_\nu+E_\mu}{E_0}}-1},\nu\right) = diff\left(T_q\cdot 8\cdot\pi^2\cdot\nu^2\frac{E_\nu}{e^{\frac{E_\nu+E_\mu}{E_0}}-1},\nu\right) \quad (3)$$

Where E_μ is the electronegativity of the minimum of photon energy close to the energy of the muon neutrino E_μ = 0.020eV, and E_0 is the proportional reference energy at which the derivative of the Planck distribution is null. *We make the supposition that the energy of photons is proportional to the derivative of the Planck body law with respect to ν.* Thus the the total amount of energy quanta, for an interval of frequencies between (100nm-10μm), one should approximate Planck's formula ε = ħ·ω. Planck empirically supposes that all quantum energies are equal to one another by looking at experimental data from infrared to UV. (1μm-200nm), with Tq=$1.765\cdot 10^{-19}$ sec, so:

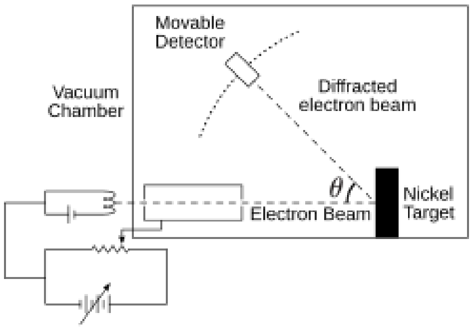
$$E_\nu = diff\left(T_q\cdot 8\cdot\pi^2\cdot\nu^2\frac{E_\nu}{e^{\frac{E_\nu+E_\mu}{E_0}}-1},\nu\right) \quad (4)$$

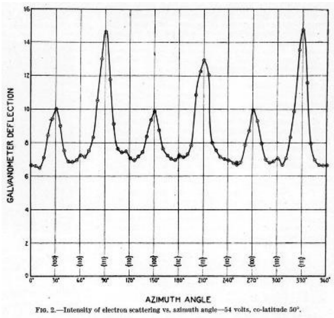
We admit that the Planck distribution law of blackbody is valid (1), but quantum energy is slightly different from E ~ ħω, depending quite a little on the frequency in the range 100nm-10μm. Also, for a quantum of time, the infinitesimal value $E(\nu)_\nu$ should be (3).
Gamma-ray's equation is easier to solve equation thus the velocity of gamma-ray and the derivative of energy $\dot{E}(\nu)=h(\nu) + \nu\cdot h'(\nu)$. But for γ-ray with time quark negative the equation (2) of energy density keeps the structure with the difference that U(ν, T), the internal energy is constant b because the energy of a transversal wave is of the initial oscillation of one nucleus and depend only of number of states times volume of gas with spherical symmetry V = (4/3)πr_b^3 per quanta of time Tq, rb is Bohr radius and speed of light c: $E_\gamma = \frac{1}{T_q^2}\cdot diff\left(\frac{16\pi^2\nu^2\cdot r_b^3}{3\cdot c^3}E_0,\nu\right)$ (5)

$$E_\gamma = diff\left(\frac{16\pi^2\nu^2\cdot r_b^3}{3\cdot c^3\cdot T_q^2}E_0,\nu\right) = T_q\frac{32\pi^2 E_0}{3}\nu = \frac{32\pi^2 E_0\cdot Tq}{3}\nu \quad (6)$$

Where $T_q = 1.765\cdot 10^{-19}$ sec, the time quanta so E = $9.340461795\cdot 10^{-18}\cdot\nu$. (In the range of ~ 2nm ÷ 0.02fm)
Thus, for γ-rays hγ = $9.340461795\cdot 10^{-18}$ eV·s, the true equation gives a huge difference (~2.5 orders of magnitude) with respect to the calculus of photons (Planck's constant) h = $4.135667697\cdot 10^{-15}$ eV·s.
Thus, the quantum energy is the number of states of the oscillators multiplied by internal energy, which could be either constant for γ-rays, or Planck's distribution: $\left(\frac{\hbar\omega}{e^{\frac{\hbar\omega}{kT}}-1}\right)$.

In the calculus of the gamma ray Planck constant, we reinterpret the Davisson-Germer experiment that was used for the de Broglie theory. The two of them took into account the Bragg diffraction law for cristal.





$\frac{1}{\lambda} = \frac{m}{2Lsin\theta} = \frac{p}{h}$ where p is the momentum of the electrons, h is Planck's constant, and m is the electron mass.
We have $p^2 = 2\cdot m\cdot W$, and the energy $W= q\cdot U_{acc,}$ where q is the charge of an electron, and U_{acc} is the acceleration tension. For a 54V supply voltage of the beam of electrons.
Respectively $\lambda = \frac{h}{\sqrt{2mW}} = \frac{h}{\sqrt{2m\cdot q\cdot U_{acc}}}$ Davisson's calculations show that the de Broglie wavelength of the electron is λ=1.67A, very closet o the to the theoretical value of λ=1.65A with an error of less than 2%.
http://www.michaelvio.byethost8.com/DavidsonRev.30.705.pdf
I propose another explanation in the sense of Planck's law, that the radiation emitted in the Davisson experiment is X-rays and γ-rays. The electromagnetic radiation has a frequency with overlapping edges, wavelength between 0.02fm÷1nm, Gamma and X-ray (0.5A-10nm).
And since the energy of the electron is 54eV, the de Broglie wavelength of the electron is λ=0.529A, the first Bohr radius of Nickel atoms target. The energy of the gamma ray is 54eV according to Planck's law $E=h_\gamma\cdot\nu$:

$$U_{acc} = h_\gamma \frac{c}{rb}$$

Thus, we calculate the value of Plank γ-ray constant $h_1\gamma = 9.570178977\cdot10^{-18}$ eV·s in very good agreement with the previous calculation $9.340714177\cdot10^{-18}$ eV·s with an error of less 2.4%.

For the calculation of X-ray generated in the Davisson experiment, the wavelength that emerges is qUacc = h·c/λ, where h is the Planck constant for photons, so λ= 23nm, which is not quite accurate. But with the equation in the link:

http://www.michaelvio.byethost8.com/PlanckBB1.pdf

$E(\nu)= -0.02006692051+ 151.5047392\cdot\ln(1 + 2.787176283\cdot10^{-17}\cdot\nu) -2.063162888\cdot10^{-32}\cdot\nu^2$;

The accurate wavelength value of the photons with the energy of 54eV is 17nm, which is 74% of the previous value of 23nm (36% the error). The gamma rays with the previous formula are:

$$\lambda_\gamma = \frac{h_\gamma}{\sqrt{2mW}} = \frac{h_\gamma}{\sqrt{2m\cdot q\cdot U_{acc}}} = 377fm$$

http://www.michaelvio.byethost8.com/PlanGam.pdf
In light of this theory, the Compton effect should be reconsidered for gamma rays $\Delta\lambda=h_\gamma/(m_e\cdot c) = 5.48fm$:

$$\lambda' - \lambda = \frac{h}{m_e c}(1 - \cos\,\theta)$$

λ = 0.01 nm scattered at 90°, $\Delta\lambda = \lambda_{Compt} \approx 0.0024$ nm, so λ' ≈ 0.0124 nm, exclusive gamma ray probably.

The γ-ray with particle γ as a package of energy define with:
The equation is $\frac{R}{r}\Delta f(r,t) = \frac{1}{V^2}\frac{\partial^2 f(r,t)}{\partial t^2}$ has spherical symmetry with the velocity $V \sim = 3\cdot10^{17}$ m/s.
and the condition at the limit g(2R) =0, g'(0) = R & propagation equation (with the γ particle mediating).

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