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New Maxwell Equations

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If the magnetic and the electric fields are in phase in a wave, old Maxwell equations are correct. But this is not true. The magnetic and the electric fields are in quadrature: with a phase difference of 90º, so the old Maxwell equations are wrong.

Electric wave equation:

$$E = E_0 \cos(kx - \omega t)$$

Magnetic wave equation:

$$B = B_0 \sin(kx - \omega t)$$

$$\Leftrightarrow \qquad \frac{d^2E}{dx^2} = \frac{1}{c^2}\frac{d^2E}{dt^2} \qquad \text{and} \qquad \frac{d^2B}{dx^2} = \frac{1}{c^2}\frac{d^2B}{dt^2}$$

New Maxwell equations:

$$\begin{cases} \dfrac{dE}{dx} = \dfrac{\rho_e}{\varepsilon_0} \\ \dfrac{dB}{dx} = \rho_m \\ \dfrac{d^2E}{dx^2} = k\dfrac{dB}{dt} + \rho_m{}^2 \\ -\dfrac{dB}{dx}c^2\omega = \dfrac{d^2E}{dt^2} + J_m{}^2 \end{cases}$$

ρ_e -- Electric charge volume density (V^2 -- squared speed)

ρ_m -- Magnetic charge volume density (VL^{-1} -- frequency)

J_m -- Magnetic current area density (V^2L^{-1} -- acceleration)

$$k = \frac{2\pi}{\lambda} \quad ; \quad \omega = 2\pi f \quad ; \quad \text{c – light speed}$$

The electron has two symmetric magnetic charges with the value:

$$q_m = \frac{h}{2q_e} = 2.068 \times 10^{-15} Weber$$

Force formula:

$$F = q_e (E + vB) + \frac{q_m}{\mu_0}\left(B - v\frac{E}{c^2} \right)$$

For the electron:

$$\rho_m \approx f_e = 1.236 \times 10^{20} Hz$$

$$J_m \approx g_e = \frac{2\pi c^2 \alpha}{x_e} = 1.7 \times 10^{27} ms^{-2}$$

We can't ignore the magnetic charges.

Corrections to UART

1 – This wave equation:

$$E = E_0 \sin\left[\frac{4\pi^2}{\lambda^2}\left(c^2 t^2 - x^2 \right) \right]$$

is wrong. The correct one is:

$$E = E_0 \cos\left[\frac{2\pi}{\lambda}\left(ct - x \right) \right]$$

2 – The variable surface refrigerator doesn't work.

The temperature: $T = \frac{E}{A}$

is an energy under a area.
The temperature remains constant with the area variation:

$$E = TA \quad \Leftrightarrow \quad \Delta E = T \Delta A$$

For macroscopic systems what varies is the energy. The temperature is equivalent to surface tension.