Lorentz Force, Relativity, Arithmetic Law of Distribution

(w.r.t. to Proof of Fermat's Theorem)

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The Lorentz Force

$$\varphi = (\varepsilon_0 E) + (\mu_0 vB)$$

$$\varphi^2 = (\varepsilon_0 E)^2 + (\mu_0 vB)^2 + 2\varepsilon_0\mu_0 (EvB) = (\varepsilon_0 E)^2 + (\mu_0 vB)^2 + \frac{2(EvB)}{c^2}$$

$$\psi\psi^* = \left[(\varepsilon_0 E) + i(\mu_0 vB)\right]\left[(\varepsilon_0 E) - i(\mu_0 vB)\right] = (\varepsilon_0 E)^2 + (\mu_0 vB)^2$$

$$F = \left(\frac{q}{m}\right)\left[\varepsilon_0 E + \mu_0 vB\right]$$

$$(F_\varphi)^2 = (\varepsilon_0 E)^2 + (\mu_0 vB)^2 + 2\varepsilon_0\mu_0 v(EB) =$$

$$(\varepsilon_0 E)^2 + (\mu_0 vB)^2 + \frac{2(EB)}{c^2} = (\varepsilon_0 E)^2 + (\mu_0 vB)^2 + \frac{2A}{c^2}$$

$$A = EvB,\quad E \perp B \Leftrightarrow \left(\sqrt{A}\right)^2 = (EvB)\left[\overset{\leftrightarrow}{0}\right]$$

$$FF^* = \left(\frac{q}{m}\right)\left[\varepsilon_0 E + i\mu_0 vB\right]\left[\varepsilon_0 E - i\mu_0 vB\right] = (\varepsilon_0 E)^2 + (\mu_0 vB)^2 \Leftrightarrow \left[A = 0 \vee c = \infty\right]$$

Let $\varepsilon_0 E = c\tau, v(\mu_0 B) = v\tau'$ and evaluate φ^2 and $\psi\psi^*$ via Relativity from the Relativistic Unit Circle.

(This is why the trace of the EM field tensor = 0, and why the "Partial Derivative" conditions on A obtain if E and B are interpreted as "momentum".

The Law of Distribution

Consider

$$x, y, n, rem(x, y, n) > 0,\ n > 1$$
$$\varphi^n = x^n + y^n + rem(x, y, n)$$
$$\psi^n\left(\psi^n\right)* = \left[x + iy\right]^n\left[x - iy\right]^n = \left[\left(x + iy\right)\left(x - iy\right)\right]^n = x^n + y^n$$

$$a\varphi^n = a\left(x^n + y^n\right) + a\left[rem(x, y, n)\right]$$
$$a\varphi^n = a\left(x^n + y^n\right) = ax^n + ay^n \Leftrightarrow a\left[rem(x, y, n)\right] = 0$$

Distribution law is not valid under multiplication of positive real numbers.

$$a\left[\psi^n\left(\psi^n\right)*\right] = a\left(x^n + y^n\right) = ax^n + ay^n$$

Distribution law is only valid under conjugation for positive integers.