Planck Energy

(Foundation of Mathematical Physics)

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In this article, I relate Einstein's Energy relation $E = h\nu$ and the concept of the derivative to the Relativistic Unit circle and its role in the foundations of mathematical physics. The equation above can be rewritten as $E = h\nu = h\frac{c}{\lambda} = h\frac{c}{(c\tau)} = \frac{h}{\tau}$, where τ represents one "period". However, the analysis of the RUC indicates that h does not exist as a first order quantity, only in the interaction of two elements (particles, particle/field) as the interaction energy in the radiation configuration of the RUC.

The equation therefore should be $E_n = \frac{h^2}{n} = \frac{h^2}{\tau_n}$, $n \triangleq \tau_n$ so that $h^2 = E_n\tau_n$ where n is the number if systems characterized by $\tau_n = 1,\ n = 1$

The confusion engendered by Schroedinger's equation is the confusion between the first order $h_x \triangleq \delta x = c\tau$ and $h_y \triangleq \delta y = vt'$ in the definition of the derivative

$f'(y) = \tan\theta = \lim_{\delta x, \delta y \to 0} \frac{f(x+\delta x) - f(x)}{\delta y}$ which ignores the interaction entropy by conjugation (the imaginary component of the result of the "linearization" of "spacetime".

This can be shown by expanding the equation and applying Newton's Third Law/

However, in generality , the expression for change is given by

$f'(\theta) = \tan\theta = \left(\frac{v\tau'}{c\tau}\right)^2 = (\beta\gamma)^2$, $\beta = \frac{v}{c}$, $\gamma = \frac{\tau'}{\tau}$, where $\beta, \tau = 1$ is interpreted as no change to the initial condition $(1_{c\tau})^2 \triangleq \left(\frac{c\tau}{c\tau}\right)^2$, $(1_{c\tau'})^2 \triangleq \left(\frac{c\tau'}{c\tau'}\right)^2$ where $(1_{c\tau})^2 = (1_{c\tau'})^2 \Leftrightarrow \tau = \tau'$. Note that $\frac{\tau'}{\tau} < 1 \Rightarrow h^2 \triangleq 2\frac{\beta}{\gamma}$ (radiation) and $\frac{\tau'}{\tau} > 1 \Rightarrow h^2 \triangleq 2\beta\gamma$ (absorption) and that $f'(\theta)$ does not include the expression h^2 which is the changing entropy during the interaction.

When the interaction is complete $\left(v\tau'\right)^2 = 0$ then $\left(1_{c\tau'}\right)^2 = \left(\frac{c\tau'}{c\tau'}\right)^2 \neq \left(1_{c\tau}\right)^2 = \left(\frac{c\tau}{c\tau}\right)^2$ and h^2 is the radiated (or absorbed) interaction energy at the source. The process is reversed at the sensor.

The interaction energy appears as radiation resistance in a radar antenna, a fried transistor in solid state, red shift in cosmology, and breaking energy (***Bremsstrahlung***) in particle physics.

Note: while interacting, the linear aspect of the system is characterized by even numbers (ad the sum of two primes) via Goldbach's conjecture), and non-interacting (unobservable) particles by odd prime numbers.