The Quantum Bang Equations

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It is hypothesised that the fundamental dimensions of Time (T), Length (L), Charge (Q), Temperature (Θ) and Mass (M) are linked as follows

$$\theta = \frac{1}{L} \quad and \quad Q = M \times T$$

To support this hypothesis, the following equations are proposed

$$\frac{4 \times k}{c \times h \times \mu \times \sqrt{\alpha\pi}} = 1 \qquad Dimensions \ \frac{1}{L\theta}$$

Using the 2014 CODATA recommended values, the above equation gives the following result: **1.000000017**

$$\frac{K_e \times \pi^3 \times \mu^4}{8 \times G \times v_e^2 \times \alpha^3} = 1 \qquad Dimensions \ \frac{TM}{Q}$$

Using the 2014 CODATA recommended values, the above equation gives the following result: **1.00000012**

From the above, the following equations using Planck units can be derived

$$\frac{2}{l_P \times T_P \times \mu \times \pi \times \sqrt{\alpha\pi}} = 1 \qquad Dimensions \ \frac{1}{L\theta}$$

$$\frac{t_P \times m_P \times \mu^2 \times \pi^2 \times \sqrt{\alpha\pi}}{q_P \times \alpha^2 \times \sqrt{2\alpha_G}} = 1 \qquad Dimensions \ \frac{TM}{Q}$$

NB: The "1" in the equations is effectively dimensionless (because the dimensions are linked and they cancel out). Therefore, whatever system of units of measurement we use, that ratio, will always be 1.

Assuming the above equations are equal to 1 exactly, a more precise value of the gravitational constant G can be derived:

$$G = \frac{K_e \times \pi^3 \times \mu^4}{8 \times v_e^2 \times \alpha^3} = \mathbf{6.674080823(13)\ x\ 10^{-11}\ m^3.Kg^{-1}.s^{-2}}$$ (CODATA value = 6.67408(31) x 10^{-11} $m^3.Kg^{-1}.s^{-2}$)

A more precise value of the Boltzmann constant k can also be derived

$$k = \frac{c \times h \times \mu \times \sqrt{\alpha\pi}}{4} = \mathbf{1.380648496(12)\ x\ 10^{-23}\ J.K^{-1}}$$ (CODATA value = 1.38064852(79) x 10^{-23} $J.K^{-1}$)

Where

$\mu =$ Proton to electron mass ratio
$v_e =$ Electron Compton frequency
$k =$ Boltzmann constant
$G =$ Gravitational constant
$h =$ Planck constant
$K_e =$ Coulomb constant
$\alpha =$ Fine structure constant
$c =$ Speed of light
$t_P =$ Planck time
$m_P =$ Planck mass
$l_P =$ Planck length
$q_P =$ Planck charge
$T_P =$ Planck temperature
$\alpha_G =$ Gravitational coupling constant (electron)