

## About new Planck units and gravity wave

By Wan-Chung Hu

### Abstract

New Planck units as well as gravity wave formula can be derived by using the spinity constant ( $2G/c^2$ ). Thus, the original Planck units can be simplified. I call these new Planck units. The deduction is listed below.

### Text

Gravity wave and electromagnetic wave are both light(photon). The definition of gravity wave is that it can carry gravity field. Thus, light can also carry gravity field. We know the gravity plus momentity energy density is:

$$E = \frac{-g^2}{8\pi G}$$

If a light has energy  $E=hf$ , its energy density is:

$$E = \frac{hf/r}{4\pi r^2}$$

( $r$  is photon radius= $\lambda/2\pi$ , and  $r*\omega=c$ )

We combine the above two formula, and get.

$$g = -\sqrt{\frac{h'S}{c}}\omega^2$$

Since the first term of the right side is planck length, we can re-write the formula as:

$$g = -l_p\omega^2$$

It is due to the primordial mass size(radius) must exceed Schwarzschild radius to avoid black hole formation:

$$\frac{h'}{2mc} * 2 \geq \frac{2Gm}{c^2}$$

Thus,

$$M_p \leq \sqrt{\frac{h'}{sc}}$$

In addition, the primordial mass has Planck charge in this Planck epoch. Planck charge formula is:

$$Q_p = \sqrt{\frac{h'c}{K}} = 1.88 * 10^{-18} \text{coulomb}$$

We can say the Planck particle "Adam" has positive  $Q_p$  and antiparticle "Eve" has negative  $Q_p$ .

In addition, the minimal possible Planck length is the diameter of the Planck mass:

$$L_p = \frac{h'}{mc} = \sqrt{\frac{h's}{c}}$$

We can derive the rest Planck units by using the above basic new Planck units!