

## Quantized Space-Time is the I in Quantum Mechanics

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**Citation:** George Gerhab (2023). Quantized Space-Time is the I in Quantum Mechanics. I J T C Physics, 4(2):1-2.**Abstract**

*I have written and published a paper "Study of Quantization of Space-Time Explains Matter and Its Aspects" and showed that space-time is made of virtual pairs of points one forward in time and the other backward in time and share their time which is the elementary unit of time, which I calculated to be  $t_0 = e^2\mu_0$  which is 3/5 the Planck time and shows this time determines the elementary unit of charge. This space-time does effect the motion of matter and its effect is the i in quantum mechanics*

**Keywords:** Why are our equations imaginary? Quantization of space-time, elementary unit of time and space**Quantized Space-Time**

Space-time is made of an infinite ocean of virtual pairs of points, one that appears backward in time and the other forward in the elementary unit of time which I calculated to be  $t_0 = e^2\mu_0$  or 3/5Planck time. Space is also quantized, all points must be equidistant from each other,  $x_0 = ct_0$ . points must appear in equilateral triangles, so the only angle that can appear in space-time is  $60^\circ$  and since  $\cos 60^\circ = 1/2$  this can explain spin. The elementary unit of time determines the elementary unit of charge and the elementary distance determines the unit of spin, without any recognition at all.

**An error was made in Quantized Space-Time**

This happened very quickly, 3/5Planck time, and at same moment, which means its extremely rare.

One point tried to share its time with two oppositely timed points and they lost charge and became frozen in time with a singleton point left out. These points became permanent, causing space-time to polarize around and create new permanent creations, every  $t_0$  amount of time..

Big Bang perhaps, or an instance that even Nature can make a mistake. This process may still be going on today.

**The singleton point becomes the matter wave**

The matter wave is created by the permanent points which share its time with the virtual pairs of quantized space-time, disappearing with the oppositely timed point and leaving the other as the new permanent singleton point. In this way, the singleton point zips around at random at the speed of light, every  $t_0$  seconds, creating the matter wave, way too fast to be measured. When we observe this to move, it appears like a

wave, but it is both a wave and a point.

**Quantized Space-Time is the i in quantum mechanics**

In Quantized space-time, since the points must keep an equal distance from each other, the only shape allowed is a equilateral triangle, the only angle that the singleton point can move is  $60^\circ$  when it disappears with a negative time point and another singleton point appears. The movement is random either back (spin -1/2) or forward (spin +1/2) since  $\cos 60^\circ = 1/2$ . The motions are too fast to measure, all we can detect is the spin. Since the negative time are involved they must be taken into consideration.

Look at Dirac's spin matrices

$$\begin{aligned} (0 \ 1 \ 0 \ 0) &+t \text{ spin } -1/2 \\ (1 \ 0 \ 0 \ 0) &+t \text{ spin } +1/2 \\ (0 \ 0 \ 0 \ 1) &-t \text{ spin } -1/2 \\ (0 \ 0 \ 1 \ 0) &-t \text{ spin } +1/2 \end{aligned}$$

Similarly for  $\alpha_3$ ,  $\alpha_2$  is imaginary and the result of quantized space-time forming the perpendicular spin which cannot be measured and, therefore imaginary.

The  $\beta$  matrix is completely made of imaginary numbers and is associated with the mass. The singleton +t point attracts -t points of a pair of quantized space-time and could lead to a drag on the singleton point acceleration, possibly being the Higg's field.

**The separation of the pairs of points in quantized space-time can explain how high energy interactions can lead to more massive particles**

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When the zig-zagging singleton point moves relative to you, it seems like some kind average wave, actually two waves in one.

The point can interact, the waves can interact, matter is not a wave or a particle, its both at the same time.

The point going backward and forward in time is the only thing in the Universe.

At high energies, the space-time pairs can separate, giving more mass to another point, creating a different particle. This can cause the muon to be an anomaly to the Standard Model.

The singleton point surrounded by quantized space-time can be incredibly flexible.

### Bibliography

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