Fundamental Length - Leonov's Length

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Physicists have searched for the fundamental length of nearly a hundred years. Physicists did not have a clear physical definition of the fundamental length. In my opinion, the fundamental length determines the linear boundary between the continuous spatial continuum and its transition to a discrete state. Namely, the diameter of a quanton characterizes the discreteness of quantized space-time. The diameter of a quanton is a fundamental length - Leonov's length.

Keywords: fundamental length, Leon's length, quanton, discreteness, quantized space-time.

The quantum of space-time (quanton) was discovered by me in 1996. Quanton showed the discrete structure of quantized space-time. This discreteness is determined by the diameter of the quanton L_{qo} [1, 2, 3]:

$$L_{qo} = \left(\frac{4}{3}k_3 \frac{G}{\varepsilon_o}\right)^{\frac{1}{4}} \frac{\sqrt{eR_s}}{C_o} = 0,74 \cdot 10^{-25}\,\text{m} \qquad (1)$$

$$L_{qo} = 0,74 \cdot 10^{-25}\,\text{m} \qquad (2)$$

$L_{qo} \sim 10^{-25}$ m (1, 2) is a fundamental Leonov's length. The formula (1) includes known constants [1, 2].
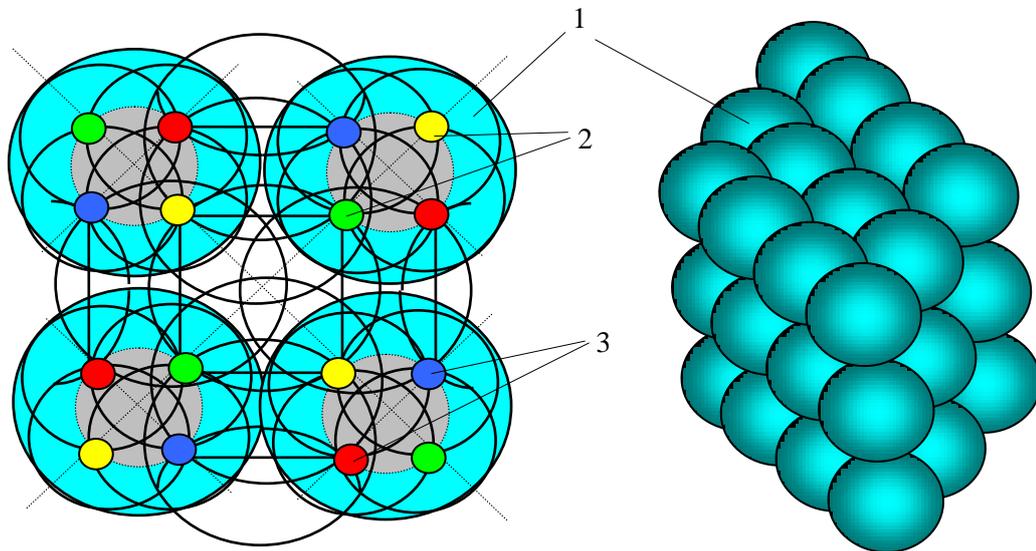

Fig. 1. Grid model of the quantized space-time in projection in the form of lines of force. 1) quantons; 2) electrical quark; 3) magnetic quark.

Fig. 2. Solid-state model of quantized space-time.

The electromagnetic quantization of space-time is the process of filling the volume with quantons. Figure 1 shows the projection the simplified model of the local section of the quantized space-time of four quantons with the deposited grid of the lines of force of electrical and magnetic fields between the charges-quarks

inside quantons and between them. This makes it possible to consider the quantized space-time as a discrete grid thrown on the entire universe which connects together all objects. The diameter of the quantons is of the order of 10^{-25} m, and their concentration is 10^{75} quantons in m^3, the density of accumulated energy is 10^{73} J/m^3. If we activate one cubic meter of vacuum, this is equivalent to the birth of another universe as a result of a Big Bang. The quantized space-time is the carrier of superstrong electromagnetic interaction (SEI).

In Fig. 2 the quantized space-time is represented in an even simpler form as a discrete close-packed structure of quantons in the form of spheres. This structure resembles the solid-state structure (charges inside quantons are not shown on the solid-state model).

The grid and solid-state elastic models of the quantized space-time are equivalent to each other. The grid model is convenient for studying electromagnetic wave processes, and the solid-state model for studying gravity. In the equilibrium state the charges with the opposite sign inside the quanton opposite are symmetrically balanced, presenting the quantized medium as neutral.

The dimensions of the quanton are determined by the linear length of the order of 10^{-25} m. It may be accepted that the length of 10^{-25} m is the fundamental length for our universe, determining the discreteness of the quantized space-time. This does not mean that in nature there are no dimensions smaller than the fundamental length. In comparison with the fundamental length of 10^{-25} m which determines the quanton dimensions, electrical and magnetic charges, including the structure of the monopoles, can be regarded as point formations with the size of the order of Planck length of 10^{-35} m. The actual displacements of the charges inside the quanton are considerably smaller than the Planck length [1].

Recently, I saw on the Internet photos of cereal crop circles that periodically appear for various reasons (Fig. 3) [4].

Fig. 3. Photos of circles on the field showing the structure of the quanton.
https://www.nzherald.co.nz/world/news/article.cfm?c_id=2&objectid=11816727
Crop circles: They're real and contain hidden messages, scientist says
12 Mar, 2017. Crop circlesin Wiltshire, England. Photo / Getty Images [4].

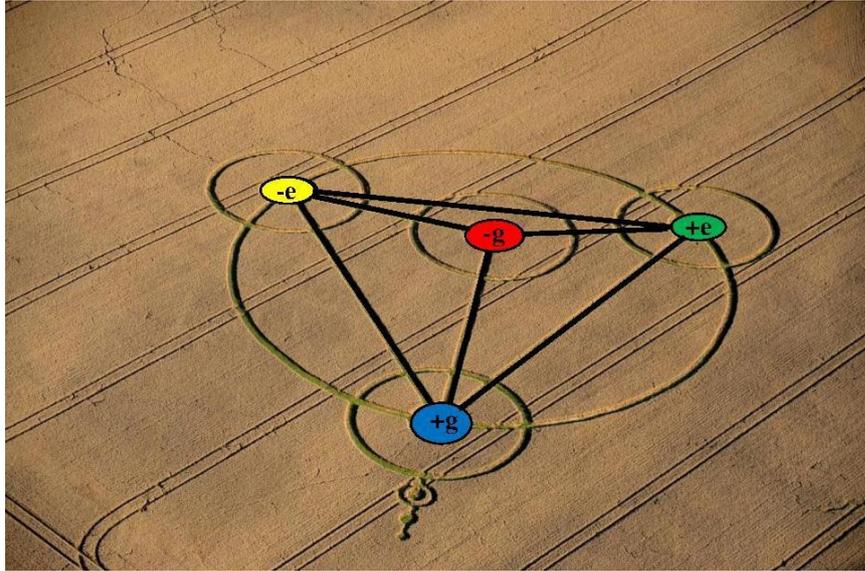Crop circles are similar to the structure of a quanton in projection (Fig 4, 5).

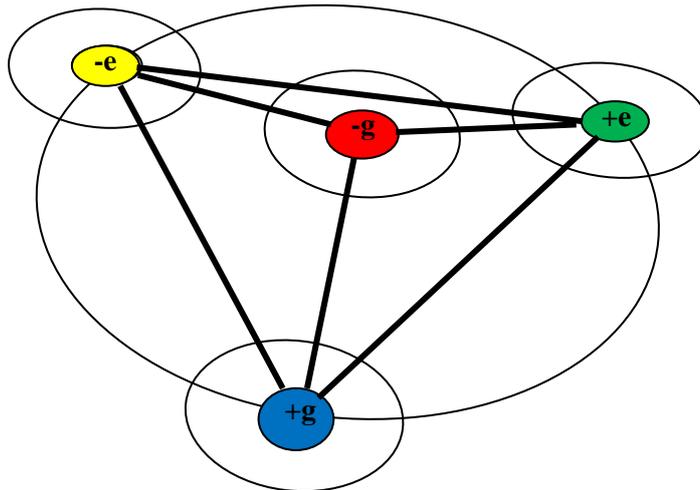**Fig. 4.** Quanton is shown as crop circles in the projection.

Fig. 5. Quanton has the shape of a tetrahedron. Electric (±e) and magnetic (±g) quarks are located on the tops of the tetrahedron.
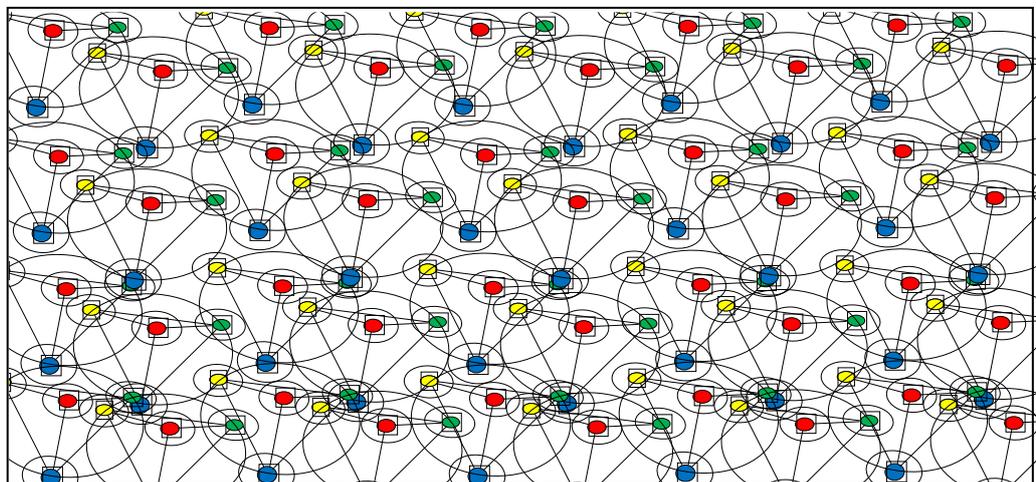

Fig. 6. The structure of quantized space-time is shown as a quasi-crystalline grid.

Fig. 6 shows the structure of quantized space-time in the form of a quasi-crystalline grid. This is a discrete grid with tetrahedral cells equal to the fundamental length L_{qo} ~10^{-25} m (1, 2) (Leonov's length). This is an electromagnetic grid which is a carrier of superstrong electromagnetic interaction (SEI). This grid connects our entire universe into a single whole structure in the form of a global energy field (SEI). We live inside a quasi-crystal with an electromagnetic structure in the form of quantized space-time, and we are its inseparable part [1].

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[4] Crop circles: They're real and contain hidden messages, scientist says.
12 Mar, 2017. Crop circlesin Wiltshire, England. Photo / Getty Images.
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