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About Parmenides emptiness as Absolute space. Aristotle, Nicolas of Cusa and Newton with Rene Descartes, Leibnitz, Mach and Einstein opponents

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Abstract. In paper the conception of absolute space of Newton, Descartes, Leibnitz has been considered from emptiness of aincient Greeks to Einstein and recently research saying us that Space, Matter, and Light are of the same nature. The building block for them is a mass-unit composed of size and motion. The energy of motion of a mass-unit for matter is the body, but for light it is the photon. The energy of size of a mass-unit for usual space is the vacuum, but for absolute space it is that ephir about which said Einstein.

Keywords: emptiness, absolute space, mass-unit, ephir, light, dark energy, dark matter

Introduction. From Parmenides' definition of the void: "You say "emptiness" but it doesn't mean void, it means something". Follows that non-being does not exist, that whatever is thinkable is also being, including emptiness [1]. "Remove the body — there will be emptiness in its place," says Aristotle [2], a notion that Newton found appealing when defining his absolute space — an infinite, external-independent, unchanging, and immobile entity. It is the container of all bodies and is primary [3]. René Descartes opposed Newton's view, arguing that matter, i.e. the body is primary because we directly interact with it, and its extension already constitutes absolute space [4]. Ernst Mach was opposite absolute space, saying that the mass of body is being observed phenomena for us [5]. Indeed, in a recent article [6], it is suggested that the fundamental building block of space, matter, and light is a unit of mass. This unit has both motion energy at $2c^2$ and size energy at $2c^2$. The sum of these energies remains constant at $4c^2$. Authors speak nothing about absolute space and ephir. We will try to do it.

Methods and materials; results. For usual space, these energies of size and motion are equal. A mass-unit of usual space is a vacuum. For matter, size energy decreases while motion energy increases, leading to the emergence of a body—a unit of mass of matter. In the limiting case of matter, size energy disappears entirely, leaving only motion energy in one point. Of cause, it is a photon of light. Photon is a mass-unit of light. From it the big bang was been beginning in past which demanded space for scenario of bang. The space and matter, their a mass-unit were born in one point of light. Therefore a mass-unit is primary building brike for of all space, matter, light in the Universe. In fact, the mass is primary as said Rene Descartes.

In present time as we know the Universe is being expanded. Therefore the size energy increases while motion energy decreases, leading to the emergence of a empty. In the limiting case of space, motion energy disappears entirely, leaving only size energy in the unfinity. The usual space becomes the absolute space. A unit of mass of absolute space is an ephir.

Let's note the motion energy implies interaction, attraction. Leibniz's perspective is interesting here. The author of "Monadology" [7] believed that relationships between bodies, rather than absolute space, are fundamental. Within the interaction, within attracting and repulsion of celestial bodies, one can discern a field structure of Universe created by massive stars and planets, as described by Einstein's General Theory of Relativity [8].

Thus, light lacks size energy and only possesses motion energy of a mass-unit of matter. One might say that light is dark matter. However, the authors of the article do not consider the limiting case of space, where matter disappears and only size energy remains. Clearly, this refers to absolute space. Ether appears — a mass-unit of absolute space. In this case, absolute space lacks motion energy and possesses only the size energy of a unit of mass of space. One might say that absolute space is dark energy. Aristotle was correct in wanting to separate motion from space. The usual space contains both motion and size energy. The emergence of a body within it reduces its size energy. However, if you remove the body, the size energy of a unit mass of space increases; remove all bodies, and you have emptiness — absolute space with maximum size energy.

Thus, we have two limiting cases. For matter, it is the light with maximum motion energy. For space, it is the absolute space with maximum size energy. Two giants, each with an immense force, energy of a mass-unit of each equals to $4c^2$, secretly "struggle" against each other. Perhaps this is precisely what they are: light as dark matter and absolute space as dark energy. "Everything exists in everything," said Nicholas of Cusa [9]. Perhaps through Leibniz's monads, everything, by interacting with everything, exists within it — and this, as we understand it, is light. "All exists in all," he continued. Perhaps "in all" refers to absolute space as the container of everything. Nicholas of Cusa also spoke of the absolute, about its maximum and minimum. As an infinite entity, absolute space is the absolute maximum. But there is also an absolute minimum, something indivisible. If there exists an indivisible atom, and we extract it and its motion from the void, what remains is the indivisible atom of emptiness of Leucippus and Democritus [10] that is the absolute minimum. It is within this that the atoms move.

Nicholas of Cusa states that the absolute maximum and minimum are one and the same. Thus, that absolute space is simultaneously both the absolute maximum and the absolute minimum. "Infinite things cannot be studied like finite things by comparing them to things known to us," says Cusa. Therefore, infinite things can only be studied indirectly, in a stepwise manner: from a particular finite thing to its species, from species to genus, and so on. In this sense, boundless physical space is a step toward understanding the infinite universe. Here, the infinite universe serves

as the species or genus for its material counterpart — boundless physical space. Similarly, infinite absolute space serves as the species for its material counterpart — boundless material ephir. As a symbol, like a finite segment on an infinite line, material physical space is observable. However, ephir — the “wind” from it — turned out to be unobservable. Here too, Nicholas of Cusa warned that the indirect approach has its limitations. A chain of finite things does not reveal the truth but only symbolizes it. Physical space is a symbol of the infinite universe. Do we conduct experiments to detect it? No. Let's here too the ephir be considered not only as a material counterpart but as a symbol of absolute space? Perhaps such could become the key for our understanding many things in Universe. In the abstract, in the absolute space, where its maximum and minimum coexist, in its material counterpart, that is in the ephir we wanted to detect by the Michelson-Morley experiment physically feel “wind” from ephir. But we failed. The speed of light in a vacuum was found to be the same in all directions, leading us to conclude that ether does not exist. However, even Einstein [8] was not opposed to the ether: “According to the general theory of relativity, ether exists. But this ether cannot be regarded as a weighty medium endowed with qualitative characteristics, consisting of parts that can be tracked over time. The idea of motion does not apply to it.” In fact, the ephir being a mass-unit of absolute space has only the energy of size. In fact, the ephir being a mass-unit of absolute space has only the energy of size.

Conclusion. Thus ephir is material analog of absolute space. But as symbol is a symbol of the structured field of the Universe.

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