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A-Temporal Gravitation and Hypothetical Gravitational Waves

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Abstract: The hypothesis of A-Temporal Gravitation considers that gravitational force is carried directly by A-Temporal physical space. Some researches show that gravitational waves are only mathematical entities generated by purely formal approaches. The possibility that do not exist as a physical reality should not be excluded.

Keywords: gravitational ether, gravitational waves, a-temporal gravitation
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1. Introduction

Introduction In his article "Chief Notions and Methods of the Theory of Relativity Presented in its Development" that is kept in the Morgan Library in New York, Einstein says that the general theory of relativity cannot be imagined without gravitational ether which is non-homogeneous, and its state has no autonomous existence but depends on the field generating matter. Since in the new theory, metric facts can no longer be separated from true physical facts, the concept of space and ether merge together (1).
Merging of A-Temporal physical space and gravitational ether introduces "non-homogeneous density of physical space" that corresponds to the density of matter. The denser the matter, the denser the physical space. In the General Theory Of Relativity curvature of space is a mathematical description for density of physical space. The "areas" of higher density attract each other. Gravitational force is carried directly by the density of physical space that is around the sun and around the earth. It is not that a particle or a wave is carrying gravitational force as is the case with light (2).
Gravitational force is A-Temporal (has no physical time) in the sense that no mate-

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rial change (travelling of hypothetical gravitational wave or of hypothetical graviton) is needed for its acting. One could imagine A-Temporal physical space as an elastic medium that has a tendency to shrink. More medium is dense, stronger is the force of shrinking. The "shrinking force" is the gravitational force. The strength of gravitational force in a given volume of elastic medium depends on the amount of matter into it.
Gravitational force is pulling together the physical space in which sun and earth are floating, it is not acting on the sun and on the earth directly. Gravitational force is in equilibrium with a centripetal force: Fg = Fc.

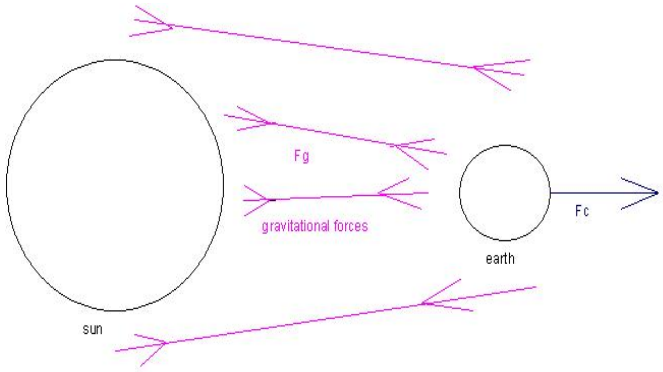

Fig. 1

2. Discussion

That physical space has a density which corresponds to the amount of matter into it is predicted also by Newberry: "In all scenarios curved space and dense space are mathematically and geometrically equivalent" (3). Einstein in 1916, a few month after the formulation of General Theory of Relativity, predicted the existence of curvature perturbations propagating with speed c on a flat and empty space-time; the gravitational waves. In 1960s, Joseph Weber began the experimental work to detect gravitational waves. He was essentially alone in this field of research. Then, the theoretical work of Wheeler, Bondi, Landau and Lifshitz, Isaacson, Thorne and others and the experimental work of Weber, Braginski, Amaldi and others opened a new area of research in this field (4).
Gravitational waves has been not detected yet: "To search for gravitational waves in lab classical or quantum mechanical detectors can be used. Despite the experiments of Weber (1960, 1969) and many others (Abramovici et al. ,1992; Abramovici et al. ,1996; Braginskij et al., 1972; Drever et al., 1973; Levine and Garwin, 1973; Maischberger et al., 1991; Tyson, 1973) and theoretical calculations and estimations (Braginskij and Rudenko, 1970; Harry et al. , 1996; Schutz, 1997) gravitational waves have never been observed directly in lab" (5).
Loinger considers that gravitational waves are non-physical fictitious entities generated, in the last analysis, by undulating references frames (6). The notion of gravitational wave (GW) came forth originally as a by-product of the linear approximation of general

relativity (GR). Now, it can be proved that this approximation is quite inadequate to a proper study of the hypothetic GW's. The significant role of the approximations beyond linear stage is emphasized (7).
A-Temporal Gravitation opens new perspectives into understanding of what happens in the centre of black holes. Beyond the Schwarzschild radius the density of physical space becomes so strong that energy of matter transforms back into the energy of physical space. The first law of thermodynamics is saved also in a centre of a black hole (8).

3. Conclusions

The possibility that gravitational force is carried by the density of A-Temporal physical space and that gravitational waves are only a mathematical entities and do not exist as a physical phenomenon should not be excluded. A-Temporal gravitation opens new perspectives into understanding of cosmic dynamics

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