Heuristic approach to Einstein's field equations

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Based on Einstein's field equations (Fig. 1), mass curves space time and curvature of space-time dictates the gravitational field around the mass. Based on the interpretation today of the Einstein's field equations the curvature of space time causes a smaller mass B to move towards a greater mass A since it is the shortest geodesic path in the curved space-time. This article tries to analyze the Einstein field equations in a new heuristic approach in which curvature of space-time and geodesic path is replaced by an equivalent dynamic flow of space –time model.

$$R_{\mu\nu} - \frac{1}{2} R\, g_{\mu\nu} + \Lambda\, g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

Fig. 1: The Einstein's field equation.

I. INTRODUCTION

The Einstein's field equation main interpretation is that mass & energy curve space-time and curvature of space time dictate the movement of objects, based on their shortest geodesic path in the curved space-time.

Let us now imagine 2 objects of equivalent mass A and mass B floating in space-time in the same velocity vector with no gravitational force between them.in their frame of reference they are standing still with no gravitational force relative to each other. Now let us imagine that mass A absorbs photonic radiation from afar by a strong radiation source causing its temperature and mass to rise fast and dramatically (since energy and mass are equivalent), to what we will relate as new mass A'. let us assume that the new mass A' is large enough to curve space-time in a way that mass B feels a gravitational force towards mass A'. From mass B point of view it feels a gravitational force in the void of space caused by the curvature of space-time. The question arise from this scenario, how can the curved void of space-time apply force and energy on mass B which was fully still in its frame of reference?

II. DYNAMIC FLOW INSTEAD OF CURVATURE,OF SPACE-TIME

We suggest in this article a new interpretation (equivalence principle) that will fit the Einstein field equations. Let us imagine two separate space-time behaviors. The first is based on the standard interpretation where the increased mass A' curves space time and curvature of space-time applies a gravitational field on mass B since this is the shortest geodesic path in space-time. The second is based on our new suggestion of dynamic flow of space-time towards the increased mass A'. Meaning, the increase of mass A doesn't increase the curvature of space-time around it but rather increase the dynamic flow of space-time towards it. Mass A' absorbs into it the flow of space-time (as if it was a drain) and mass B floats in this flow of space-time towards mass A' as if it was a wooden log floating on a river towards a waterfall. Our equivalence principle assumes that there is no experiment that can be done on mass B in order to agree which one of the space-time interpretations is the correct one and they both fit the Einstein field equations. Mass B cannot know if he is moving in a geodesic space – time line towards mass A' in a curved space-time or it is standing still in a floating space - time towards mass A'. Mass A', behaves like a drain that sucks in the space-time void that is surrounding it. As the flow of space-time increases time dilation also increases based on Einstein field equations.

The flow of space-time is dependent on the observer's frame of reference. For example, if the observer is mass B, as his velocity towards mass A' increases it observes in its frame of reference, that mass A' is accelerating towards him. it observes that the accelerating mass A' keeps increasing its mass (based on special relativity) and the flow of space-time towards the increasing mass A' increases accordingly.

III. WHERE DOES SPACE TIME FLOW TO AND WHERE DOES IT COME FROM?

If space-time floats towards mass A' as this article suggests, than there is an important questions to be asked: Where does this space-time float to? We claim that the fabric of the universe is quantized into quantized cells in the size of Planck's length and these quantized cells are divided by non-local grid like dimensions [1]. When space time floats into the mass it floats into these grid dimensions. We claim that anti-matter applies anti-gravity [2] and for each particle of matter that absorbs space-time (gravity) there is an anti-matter particle [3] that generates space-time (anti- gravity) .As the universe developed, matter particles clustered together because of gravitation while anti-matter particles were spread apart throughout the universe because of anti – gravitation. As the matter particles clustered to form stars and galaxies by a dynamic

flow of space-time into the matter grid dimensions and the local gravitation grew in the cluster regions, anti-matter anti-particles spread uniformly throughout space causing the expansion of space by applying anti-gravitation through a flow of space-time out of the anti-matter grid dimensions. To summarize, space-time flows inwards through the matter grid dimensions ("Drain") and back outwards through the anti-matter grid dimensions ("Source"). This circulation (Fig. 2), causes a local clustering of matter (stars, galaxies, clusters of galaxies and black holes) while the void region of space is expanding through the outer flow of space from the anti-matter particles which are spread evenly through our universe (in contrast to the matter particles that cluster together because of the gravitational effect).Massless photons will flow in the speed of light in all frames of reference. When a photon travels with the flow direction of space it will undergo a gravitational blue shift and when it will travel against the flow of space it will undergo a gravitational red shift.

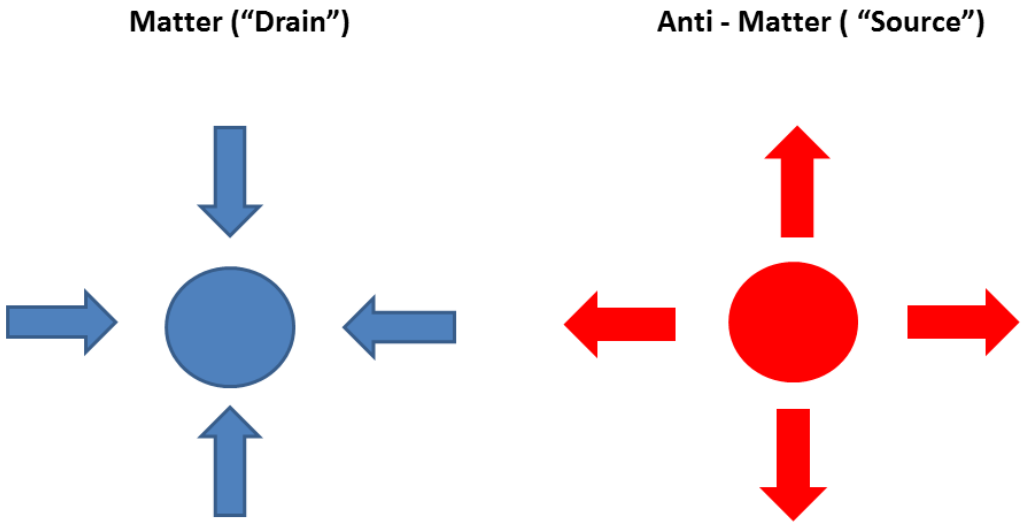

Fig. 2: Space-time flows into matter (left, colored blue).

Space-time flows out of anti-matter (right, colored red).

The arrow directions represent t the direction of the flow of space-time (into matter and out of anti-matter).

V. CONCLUTION

This article is focused on a basic question regarding Einstein's field equations, how can curvature in the void of space-time apply a gravitational force on a particle which is standing still in its frame of reference.

The standard theory is that a large mass A' curves space-time and gravitons mediate the gravitational force to a smaller mass B that moves toward mass A' in order to reach its shortest geodesic path in space-time.

This article suggests a new concept in which Einstein's field equations describe the dynamic flow of space-time into the grid dimensions of matter which behave like a drain for space-time. As mass A' increases, the flow of space-time into its grid dimensions increases .As you get closer to the grid dimensions of matter the flow of space-time (gravitation) increases and time slows down exactly like described mathematically in the Einstein field equations. Mass B floats in the flow of space-time towards mass A'.

We suggest a new equivalence principle (a dynamic flow description of space-time that fit the Einstein field equations) in which curvature, geodesic lines and mediating gravitons are replaced by the flow of space time into matter particles (as if they were a drain sucking in the space-time fabric). The space-time fabric that was absorbed into matter clustered particles is spread back throughout the universe through the anti-matter particles [2], [3] (as if they were a source generating new fabric of space-time) which are spread uniformly throughout space and expands the universe. We also suggest that this flow of space-time happens through the grid (sometimes referred as GRID) dimensions [1] .this explains also the fact that matter tends to cluster up while anti-matter tends to spread out evenly throughout space, and this can explain the missing anti-matter in our clustered universe and the mechanism that is responsible for the expansion of the universe. The prediction that comes out from this article is that anti matter, when measured, will prove to have anti-gravity influence on its surrounding. Furthermore, by knowing the amount and concentration of matter throughout space and by assuming that the same amount of anti-matter is spread uniformly throughout space and generates an equal amount of uniform anti-gravity (inverse to the total gravitational field generated by matter) ,the expansion rate of space can be calculated and compared to cosmological measurements.

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[1] Quantization of photonic energy and photonic wavelength

http://www.slideshare.net/eransinbar1/quantization-of-photonic-energy-and-photonic-wave-length

[2] Anti-matters gravity paradox

http://www.slideshare.net/eransinbar1/anti-matters-gravity-paradox

[3] Entanglement between matter and anti-matter particles

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