The Laws of Space and Observation: A Unified Theory

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Abstract: Observational Physics is a new theory which goes back and corrects the errors that were originally made in special and general relativity, to create a working unified theory. Observational Physics is based upon the concepts that the universe is composed of energy of four different forms, time is constant, distance is relative, Space exists as a fourth form of energy, and rather than relative states, there are observed states of which the only true state is that which an object would see itself. To date, this theory has been correct for all macro calculations and it predicts that all black holes will have a true gravitational force of 2.0E8 m/ s^2 at its horizon. With Observational Physics, gravity can be calculated without a gravitational constant. It is anticipated that Observational Physics will also hold true on a quantum level as it is studied further.

Keywords: Observational physics, energy, space, special relativity, general relativity, time, law, gravity, black hole, density, mass, density.

Introduction

Observational Physics is based upon the unique premises that the universe is composed solely of four forms of energy, time is not relative, Space* exists, distance is a function of Space density, and that the only accurate state of observation is that which an object would see itself.[1] All other states of observation are relative and in order for an observer to calculate the true values for an object's size, mass, gravitational force, and energy, one must use the relative space density and warp equations which are explained in detail later.

By using the Relative Space Warp (RSW) equations, it becomes simple to calculate the actual gravitational force of any body without having to use the gravitational constant.[2] It is necessary that we no longer think of gravity as a "pulling" force (i.e. gravity waves) but rather that of a force which results from the displacement of Space and if anything would be a "pushing" force. This entity which I have come to call "Space" may actually be what has been referred to as "background energy," "vacuum energy," or "zero-point field energy (zpf)" in the past. The characteristics and properties of this "Space" shall be explained later.

Proposed Theory

The following are the Laws of Space which delineate out the characteristics and properties of Space and energy which comprise the whole of the universe:

1.   The Universe* is composed of energy in four different forms:

·   confined energy (matter or packet/quantum energy)

·   free energy (i.e. heat)

·   dense/condensed energy (black hole and primordial/pre-"big bang" energy)

·   base energy ("Space")

2.   Energy can neither be created or destroyed, only changed from one form to another.

3.   There is no such thing as entropy on a universal level.

4.   When Space is displaced, it becomes warped and thereby exerts a force in the direction of that which is displacing it.

5.   The force of displaced Space is proportional to the density of the energy displacing it.

6.   The density of Space is relative.

The theory works quite well on a macro (cosmological) level. In fact, it works so well that the gravitational force of any mass can be calculated without using the gravitational constant. In fact, it also allows us to discover that the gravity of any black hole at its horizon will always be 2.0 E8 m/s^2 (see addendum).

The next step will to see if it can predict and explain the gravitational forces on a quantum level which are miniscule relative to the other atomic forces.

Additionally, this theory could explain the 80+% of "dark matter" that we can not account for. If Space is composed of energy then it will have mass. It also should have its greatest density in those areas of high matter/energy density.

How can it be validated/proven?

1.   On a macro level, it has already been validated.

2.   As the density of Space will be less in areas of less gravity, there should be less energy in a vacuum here on Earth vs. in space. Once could easily find the amount of pressure needed to liquefy helium at a certain temperature on Earth and in space and it should take more pressure to liquefy helium on Earth (more energy to overcome).

3.   Once I have applied the macro calculations on a quantum level, if they are predictive then the theory shall be validated on all scales.

Observational Physics

1.   All objects are at rest relative to themselves.

2.   The only "real" or "true" measurements of an object are those which are done in the same existence state as the object itself.

3.   All energy has mass (the ability to displace Space).

4.   Time and "true mass" are the only constants between the observer and the object being observed. "True mass" is the mass that an object in the same existence state as the mass would observe.

5.   Distance is inversely proportionally to relative velocity and Relative Space Density (RSD).

The Relative Space Density and Warp Equations

"Relative Space Density" (RSD) is the density of Space in which an observed object resides relative to the density of the observer's Space. The RSD is calculated by dividing the density of the observer's Space (D_{obs}) by the density of the object's Space (D_{obj}).

Therefore any object will always see its own relative Space density as being the same (RSD=1) no matter where it is in the universe. Because the density of Space may be hard to measure, we can convert our definition of RSD to distance since $D=m/d^3$ and for an object at relative rest where $m_{obs}= m_{obj}$ and we are only measuring along one axis then $RSD = d_{obj}/d_{obs}$.

But in order to make any sense out of the RSD equations and to validate the theory, I have created "Observational" physics[1] which I will try to briefly outline.

As shown by Sir Arthur Eddington in 1919 and others since in terms of the Sun, there is a warpage of Space around a mass which I call the "Relative Space Warp" (RSW). I have defined this as being the Angle of Photon Deviation (APD) as measured in degrees and divided by 360 degrees with a correction for any interference that may be caused by the gravity of the observer's viewing site which I will call the Angle of Gravitational Interference (AGI).[1] Obviously a more complicated version of this equation may be needed if there are more than one gravitational forces interfering with the APD, but the basic concept is the same as shown in figure 3 and expressed in the following equation.

$$RSW = APD/360 - (\sin(AGI) \times APD/360)$$

Since the RSW of an object is proportional to that object's gravity (g), we can say the following for any two masses y and z.

$$RSW_z/RSW_y=g_z/g_y$$

We can now substitute the sun for object y and solve for g_z as follows.

$$RSW_z /RSW_{sun}= g_z /g_{sun}$$

$$g_z = g_{sun} /RSW_{sun} \times RSW_z$$

It is now possible to see that the number represented by g_{sun}/RSW_{sun} is a constant, which would be the same for any celestial body. I am using the sun because it is the only celestial body for which I have the appropriate information. I will call this number the "Space Constant" (SC) which for now will have an approximate value of $2.0E8$ m/s^2 as calculated here.

$$SC = g_{sun}/RSW_{sun}$$

$$SC = 274 \text{ m/s}^2/((1.75 \text{ arcseconds}/360\text{degrees}) \text{ x } (1\text{degree}/3600\text{arcseconds}))$$

$$SC = 274 \text{ m/s}^2 / 1.35E\text{-}6$$

$$SC = 2.0E8 \text{ m/s}^2$$

As more information about other celestial masses becomes available, the numerical value for the SC will become more accurate. We can now determine the gravity of any object using the Space Constant Equation as shown here.

$$g_x = SC \text{ x } RSW_X$$

The calculation of gravity at any distance from an object can be done by just measuring the RSW of an object at that distance from its center. We can further prove the validity of these equations by finding out the actual APD for such bodies as the Earth and moon which would have a calculated APD of 0.064 and 0.010 arcseconds respectively.

$$g_{Earth} = SC \text{ x } RSW_{Earth}$$

$$RSW_{Earth} = g_{Earth}/SC$$

$$APD_{Earth}/360\text{degrees} = 9.80 \text{ m/s}^2/ 2.0E8 \text{ m/s}^2$$

$$APD_{Earth} = 4.9E\text{-}8 \text{ x } 360\text{degrees x } (3600\text{arcseconds}/1\text{degree})$$

$$APD_{Earth} = 0.064 \text{ arcseconds}$$

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$$APD_{moon}/360\text{degrees} = 1.62 \text{ m/s}^2 / 2.0E8 \text{ m/s}^2$$

$$APD_{moon} = 8.1E\text{-}9 \text{ x } 360\text{degrees x } (3600\text{arcseconds}/1\text{degree})$$

$$APD_{moon} = 0.010 \text{ arcseconds}$$

With Observational physics like SR, the observer sees the object's size (distance) decrease as relative

velocity or gravity increases but unlike SR, time is constant for both the observer and the object (no time dilation).   I have created a device which measures true time by the duration that it takes light to travel a certain distance which will be constant because the observed speed of light is a constant to an observer in the same existence state and will always 3E5 km/s which I prefer to call c_{obj}.[3] If my theories are correct then the "light clock" will not show any of those "relativistic changes in time" that may be currently seen with conventional and atomic clocks and it would also explain why there is an observed difference in the speed of light (c_{obs}) in different media.

Summary of Key Points

1.   The universe is composed of energy in four different forms.

2.   Space exists as a physical entity with unique properties and characteristics.

3.   Distance is relative, while time and true mass are not.

4.   What we have called "gravity" is actually the force or pressure of Space resisting its displacement by matter/energy.

5.   Observational Physics offers a unified view of the universe that supplants Einstein's previous theories of General and Special Relativity. The Relative Space Density and Warp Equations have been created to allow a distant observer to calculate an object's actual size, mass, gravity, and more.

6.   The Laws of Space postulate the characteristics of Space.

7.   An object's gravity, velocity, mass, radius, density, RSW, RSD, ASW, and ASD are all mathematically related via Observational physics.[1]

8.   In Observational physics, what an object experiences is the only true reality while what the observer in a different existence state, sees only a distortion of that true reality.

9.   The density of Space is increased when it is being displaced by matter/energy and/or a   relative increase in velocity. Distance is inversely proportional to the density of Space.

10. The gravity of any black hole at its horizon will be 2.0E8 m/s^2.   The observed radius of a black hole is 938 m times its mass in solar mass units.

11. The observed speed of light (c_{obs}) is relative while the objective speed of light (c_{obj} which is approximately 3E5km/s) is constant in RSD=1 Space (the same existence state as the observer).

12. The only true measure of time will be a light clock which utilizes c_{obj} over a preset distance as defined in RSD=1 Space.

Conclusion

It is one thing to come up with a grand theory of everything, but it is another to show that it works. The Laws of Space and Observation have been shown to be valid on a macro level and now the key is to

show that it is valid on the micro (quantum) level.

I have described those experiments which could validate the theory further and hopefully, I shall be able to get others to assist in carrying them out.

*The capitalization of the words "Space" and "Universe" has been done intentionally in order to differentiate these specific and unique entities from their generalized common noun usage. The term "Space" as being used here is a proper noun defining a specific physical entity, and "Universe" as being used here is a proper noun defining our specific universe.

References

1. Siepmann JP, *The Laws of Space and Observation*, Journal of Theoretics, Vol. 1 No. 1, 1999

2. Siepmann JP, ***A New Method of Calculating Gravity without the Gravitational Constant**,* Journal of Theoretics, Vol. 1 No. 2, 1999

3. Siepmann JP, *The Light Clock: A New Method for Measuring True Time*, Journal of Theoretics, Vol. 1 No. 1, 1999

Addendum

Calculation of Space Constant (SC):

$$SC = g_{sun}/RSW_{sun}$$

$$SC = 274 \text{ m/s}^2/((1.75 \text{ arcseconds}/360\text{degrees}) \times (1\text{degree}/3600\text{arcseconds}))$$

$$SC = 274 \text{ m/s}^2 / 1.35E\text{-}6$$

$$SC = 2.0E8 \text{ m/s}^2$$

Using the Space Constant Equation we can also calculate the gravitational acceleration at any black hole horizon (bhh) as shown below.

$$g_{bhh} = SC \times RSW$$

$$= 2.0E8 \text{ m/s}^2 \times 360/360$$

$$= 2.0E8 \text{ m/s}^2$$

Calculation for a bh radius:

We can also figure out the observed radius of a bh by using a 1 solar mass bh and comparing it to the

sun, which is also1 solar mass. Because we know that the RSW is proportional to mass (m) and inversely proportional to radius (r), we can therefore solve for the observed radius of a 1 solar mass bh.

$$RSW_{sun}/RSW_{bh}=(m_{sun}/r_{sun})/(m_{bh}/r_{bh})$$

$$1.35E\text{-}6/1=(1/6.95E8m)\,/(1/r_{bh})$$

$$r_{bh}=1.35E\text{-}6 \times 6.95E8m$$

$$r_{bh}= 938 \text{ m}$$

The radius of 938 meters would give us a circumference of 5.89 km, which is quite different, than the 18.55 km obtained from Classic Relativity:

$$C= 4pSG/c^2 = S \times 18550 \text{ m} = S \times 18.55 \text{ km}$$

C=circ. of a bh, S= # solar masses, c=2.998E5 km/s, G=1.327E11 km^3/s for 1 solar mass

Also the density of a bh can be calculated using Observational physics and is found to be 7.67E20 kg/m^3.

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