

Light Momentum in Gravispheres

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This is a PROM* paper
and subject to ongoing review

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Light Momentum in Gravispheres

Exposed Light(1)

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ABSTRACT

This paper summarises many contributions from readers of Principia Scientific International articles and illustrates the value of this semi formal communication technique. The results show a cogent alternate explanation to the Dopler shifted starlight on which the Big Bang theory relies. The conclusions are consistent with those expressed in PSI PROM papers Beatty-Redshift.pdf(5) and Beatty-Gravispheres.pdf(9), but also confirm that the speed of light is not constant and is affected by the strength of the relevant gravity field. It appears that light also includes an ephemeral mass component which interacts with gravity. This phenomenon is referred to as the Bosmin Effect.

KEYWORDS:

Shapiro Effect, Bosmin Effect, BE, redshift, blueshift, Gravispheres

1. ACKNOWLEDGEMENTS.

Two background discussion articles by Christopher M. Graney, professor of physics and astronomy at Jefferson Community & Technical College in Louisville, Kentucky are referenced, including “Imagine an Expanding Universe”(2) and “Expanding Universe? Hogwash!”(3)

Several contributors to Principia Scientific International (PSI) have provided comment, which is greatly appreciated. Papers with attached comments of note include:

<https://principia-scientific.org/ives-einstein-and-the-aether/>

<https://principia-scientific.org/cosmology-has-some-big-problems/>

<https://principia-scientific.org/the-black-hole-the-big-bang-and-modern-physics/>

<https://principia-scientific.org/ligo-seeks-these-8-sources-of-gravitational-waves/>

<https://principia-scientific.org/why-the-nuclear-force-doesnt-exist/#comments>

<https://principia-scientific.org/time-warps-and-the-m87-black-hole/>

<https://principia-scientific.org/shapiro-effect-why-light-from-distant-galaxies-is-redshifted/>

The last paper proved particularly revealing in that the Shapiro Effect shows that light velocity is influenced by changes to the strength of gravity, and is further detailed in Section 3 below.

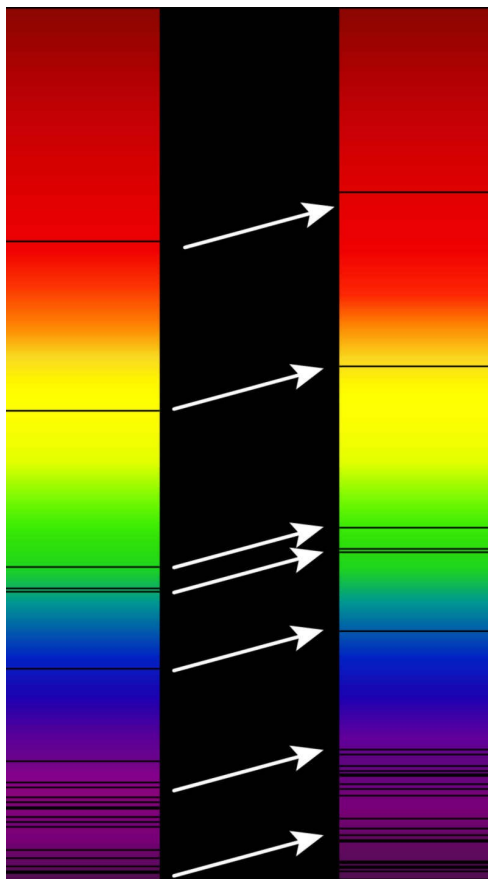
This paper recognises that the question of red shift in many stellar spectrums is basic to our understanding of the universe.

Discussion confirmed term ‘waves’ can be confusing when applied to electrical - magnetic light transmission, where the term ‘oscillations’ is more appropriate.

Light has an initial energy impulse and vector. The energy pulse transmits by cycling between electrical and magnetic phases which seems to produce an ephemeral mass phase in-between, which is further discussed below. The mechanism is self sustaining, similar to a friction free pendulum. So no aether is required, which would otherwise be implied by the use of the term 'wave'.

The red shift phenomenon is described at(4) and includes spectrum image Figure 1 with comment;

Absorption lines in the visible spectrum of a supercluster of distant galaxies (right), as compared to absorption lines in the visible spectrum of the Sun (left). Arrows indicate redshift. Wavelength increases up towards the red and beyond (frequency decreases).



2. OUR RED SHIFT ENVIRONMENT PAPER.

“Our Red Shift Environment”(5) paper is opened for public review, resulting in some discussion regarding the proposed nature of light oscillations, in particular Figure 2 illustrates the suggested mechanisms, which include electric and magnetic components to illustrate the known propagation of light through space.

During the comments section of open review, the concept of 'light mass' or the Bosmin Effect (BE) was introduced to further explain why light appears to be affected by variation in gravity, because without mass, gravity has no influence.

BE is an ephemeral condition which occurs from the recognition that $E \equiv mc^2$ is a known reversible equation. The opportune moment for the transient mass condition to occur appears when the wave is changing phase. This is depicted in Figure 2 associated with the electric component, operating in the Z plane. It is reasonable to expect this condition also exists in the magnetic phase operating in the X plane, but is ignored for presentation simplicity. Figure 2 shows starlight progression in the Y direction. The first third shows starlight operating in a neutral gravity phase, and travelling at a constant speed c.

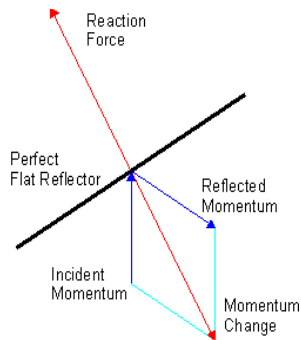
The Shapiro Effect concludes that the speed of light can change when affected by alterations in gravity. Normally the speed of light c is equal to the frequency f times the wave length λ :

$$c = f \lambda$$

However, if the speed of light varies through the influence of BE and gravity changes, the wave length alters together with changes to frequency. This also affects the speed of light.

Of note is the phenomenon of 'radiation pressure' or 'electromagnetic momentum' (6) illustrated in Figure 3.

Radiation pressure is the pressure exerted upon any surface due to the exchange of momentum between the object and the electromagnetic field. This includes the momentum of light or electromagnetic radiation of any wavelength which is absorbed, reflected, or otherwise emitted (e.g. black-body radiation) by matter on any scale (from macroscopic objects to dust particles to gas molecules).



Light oscillations exhibit measurable momentum this also indicates the presence of mass.

The second stage in Figure 2, shows the ray accelerates when encountering a region of higher gravity, the mass component does not change, but its return during the rhythmical interchange process (oscillation) is enhanced. The speed increases.

The third stage of Figure 2 indicates as light leaves the high gravity environment it slows down, leading to a longer wavelength and a red shifted oscillation.

However, we can expect a loss of efficiency during the overall process of passing from higher to lower gravities, resulting in a slowing of the light ray relative to the original starlight velocity. When the light passes through several gravitational field variations, we can expect the energy efficiency losses to be cumulative, resulting in a red shifted image.

Importantly, the third stage simulates a ray emerging from a region of low gravity compared to the original starlight. This accelerates the light into shorter more concentrated oscillation, and explains why starlight coming from nearby galaxies with gravity fields weaker than our solar system, experience blue shift acceleration.

Interim Conclusions.

- Light oscillations exhibit measurable momentum which indicates the presence of mass.
- When the light passes through several gravitational field variations, we can expect the energy efficiency losses to be cumulative, resulting in a red shifted image.
- Starlight coming from nearby galaxies with gravity fields weaker than our solar system, experience blue shift acceleration.

3. THE SHAPIRO EFFECT.

Further discussion with PSI readership occurred as a consequence of the publishing of “Shapiro Effect: Why Light From Distant Galaxies Is Redshifted”(7)

The document convincingly states the speed of light was measured in several ways, and found to be altered by gravitational attraction. This is in accordance with the Shapiro Effect, which ‘started with a short letter in the Journal of Astrophysics in 1964 by Dr. Irwin I. Shapiro of the Lincoln Labs of the Massachusetts Institute of Technology, which stated in part:’

“...according to the general theory, the speed of a light wave depends on the strength of the gravitational potential along its path.”

This possibility was acknowledged by Albert Einstein’s 1912 paper which concluded:(8)
“The principle of the constancy of the speed of light can be kept only when one restricts oneself to space-time regions of constant gravitational potential.”

More traditional views on the speed of light include:

Notable attempts to incorporate a variable speed of light into physics have been made by Einstein in 1911, by Robert Dicke in 1957, and by several researchers starting from the late 1980s.

The speed of light in vacuum instead is considered a constant, and defined by the SI as 299792458 m/s. Variability of the speed of light is therefore equivalent with a variability of the SI meter and/or the SI second.

However, the comment from PSI(7) is unambiguous:

So what does this mean? Imagine light being emitted from a distant galaxy one hundred million light years away (meaning the light has to travel a hundred million years to reach us). As that light wends its way tirelessly toward earth, it passes continually through the extremely small but ever-present gravitational field present in outer space — the cumulative gravitational field of every star and galaxy along its path. As we now know from Dr. Shapiro’s experiments, that light will experience a small, cumulative deceleration from the forces of this gravitational field acting at long range. This is not an interaction of the light photon with interstellar matter, which would smear the light and provide a visible signature, but simply a gravitationally induced time delay. The photon’s interaction with gravity does not alter its path, nor change its characteristic, except by gradually decreasing its velocity and energy.

The Bottom Line

Quite simply, the Hubble law, which relates the redshift of distant galaxies to their distance, may be not due to the Doppler effect, as is universally accepted in the astronomical community, but could be due to the effect of intergalactic gravitational fields on light. This means that there is no reason to believe that the universe is expanding, and therefore no reason to believe there was ever a Big Bang.

Interim Conclusion

Light spectrum speed is not constant and changes by slowing in a high gravity field and accelerating in a lower gravity field.

4. GRAVISPHERES *What's the matter with Dark Matter?*(9)

Our Gravispheres paper proposes that several Gravispheres could exist between Earth and a remote galactic light source, as shown in Figure 4. In this situation it is expected that the red shift mechanisms detailed above are reinforced with further interactions, resulting in a deeper red shift. Starlight coming from Segment-A Region has to pass through the high gravity region associated with V616 before arriving at the solar system. Light coming from Segment-B Region does not have to pass V616, but will only come from a region of gravity less than present at the solar system, if it originates from the region marked Z. This results in a blue shifted spectrum. If the light comes from further afield, it will have passed Gravispheres P or Q ensuring red-shift starlight.

Interim Conclusion

This proposal offers a very plausible alternative to the Doppler red shift theory generally regarded as the accepted science.

5. CONCLUSIONS

- Light oscillations exhibit measurable momentum which indicates the presence of mass.
- When the light passes through several gravitational field variations, we can expect the energy efficiency losses to be cumulative, resulting in a red shifted image.
- Starlight coming from nearby galaxies with gravity fields weaker than our solar system, experience blue shift acceleration.
- Light spectrum speed is not constant and changes by slowing in a high gravity field and accelerating in a lower gravity field.
- This paper offers a very plausible alternative to the Doppler red shift theory generally regarded as the accepted science, and is the basis for the Big Bang theory.

6. REFERENCES:

- 1) <http://www.bosmin.com/PSL/ExposedLight.pdf>
- 2) <https://www.vofoundation.org/blog/imagine-an-expanding-universe/>
- 3) <https://www.vofoundation.org/blog/expanding-universe-hogwash/>
- 4) <https://en.wikipedia.org/wiki/Redshift>
- 5) <https://principia-scientific.org/new-paper-our-redshift-environment/>
- 6) https://en.m.wikipedia.org/wiki/Radiation_pressure
- 7) <https://principia-scientific.org/shapiro-effect-why-light-from-distant-galaxies-is-redshifted/>
- 8) https://en.wikipedia.org/wiki/Variable_speed_of_light
- 9) <https://principia-scientific.org/wp-content/uploads/2018/02/PROM-Gravispheres.pdf>