The MM Theory - The Theory of Everything

Part (1)

Fundamentals

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Abstract

The nature of matter and universe and their behaviours have been discussed for many years and based on these arguments, many unanswered questions have arose. In this part of the work, a new particle called "M Particle" is presented. These particles that fill all of the space, have mass, angular moment, shape, and may also have or gain linear motion. The particles can pass through vacuum, any material, and any medium freely. Based on an experiment conducted that is presented here in this paper and an interpretation of the classical physics results, in this part all phenomena of light, radio waves, electricity, magnetism, atoms and molecules, heat, dark matter, universe, astronomy and cosmology are explained.

1. Introduction

The "M Particle" and the Basic Fundamental of the "MM Theory":

M Particles fill all of space and universe including vacuum. The only exceptions are the empty spaces inside atoms and molecules [Figure 1] and some regions of space in the universe. These particles have mass, angular momentum, shape, and may also have or gain linear motion. The particles do not possess magnetic poles or electrical charges. Classical interpretations of magnetic poles and electric charges are abandoned and there is no friction in-between particles. These particles are continually jiggling, bouncing, turning and twisting about one another. They can move about one another and they can each have vibrations. Based on mechanical concepts, they act and react one another through vibrations and collisions – in a mechanism called "M interactions." These "M interactions" can change the amount and direction of linear momentum and angular momentum of the M particles. The distance between the particles depends on their amount of vibrations and the amount of space pressure of the surrounding region. The pressure in space is caused by the vibrations and interactions of M particles themselves and depends on the spread of the M particles at any point in the universe. As a result of continuous vibrations, all particles within the universe distance themselves from one another. At any location in the universe that the particles can more readily expand to, there the space pressure is less. Consequently, the space pressure is always less at the very edges of the universe and on the inside it varies according to the expansion of the universe.

As a whole, all the universe operates as a result of the interactions of these particles. An example of an "M particle" is an electron, which has angular momentum and also linear motion. The electron doesn't itself travel through a distance, but in fact transfers its linear momentum to the others "M particles" in direction of its linear motion. As the distance between particles is not the same at all points in the universe, particle density (ρ) is defined at any point in the universe as a sum number of M particles within a given unit volume.

$$\rho = \frac{n}{v}$$

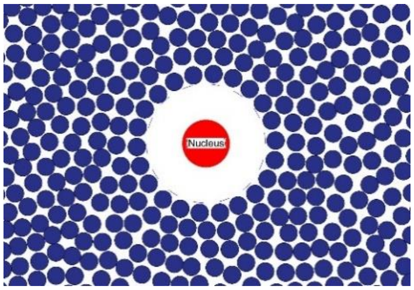

Fig. 1: Diagram depicting an atom, empty space inside the atom, and the surrounding "M particles"

2. Theory

Speed of Momentum Transfer ($\overrightarrow{v_p}$):

For the purpose of investigating the Speed of Momentum Transfer, the speed of transfer of momentum, two conceptual scenarios based upon classical physics are considered.

First scenario (1):

In the first scenario, one body, body (a), with speed $\vec{v}$, with linear momentum $\overrightarrow{mv}$, travels a distance (*d)* for a duration of time *(*t_1*),* from point (1) to the point (2) , as shown in [Figure 2]. For this case, the linear momentum of the body from the beginning to the end of the pass has transferred with speed $\overrightarrow{v_{p1}}$. In fact, in this scenario, the speed of transfer $\overrightarrow{v_{p1}}$ is exactly equal to the speed of the body. The speed of momentum transfer for this scenario can be calculated as:

$$v_{p1} = v = \frac{d}{t_1}$$

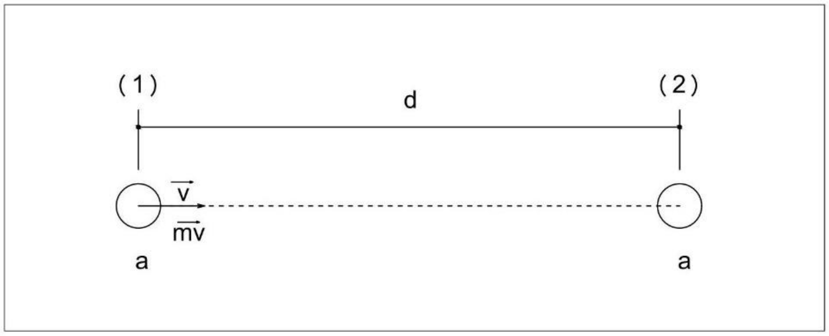

Fig. 2: Diagram of a body from point (1) travelling along path d to reach point (2)

Second scenario (2):

In this scenario, it is assumed that a number of rigid bodies are oriented in a line in such a way that there is no space between them [Figure 3]. A rigid body (a) with the same speed $\vec{v}$ as scenario (1) and with linear momentum $\overrightarrow{mv}$ collides with a second rigid body (b). The distance from body (b) to body (c) is the same as in scenario (1), d. Then, the body (a) comes to stop while rigid body (c) begins to move with the same $\overrightarrow{mv}$. The body (c) does not move instantaneously. Body (a) after collision, loses its own linear momentum while the last body, in this case body (c) gains the same linear momentum. However, in comparison to the previous scenario, at a time after rigid body impact, body (c) will have motion at a location point further on than where body (a) would be moving unimpeded.

The question of how long it takes for the initial body (a), upon collision, to cause the last body to move, is dependant on the rigidity of the colliding bodies. The greater the rigidity of the bodies, the less the time for the final body to move. If all the bodies are 100% rigid, the last body moves instantly. In reality, it is impossible for a body to be fully rigid.

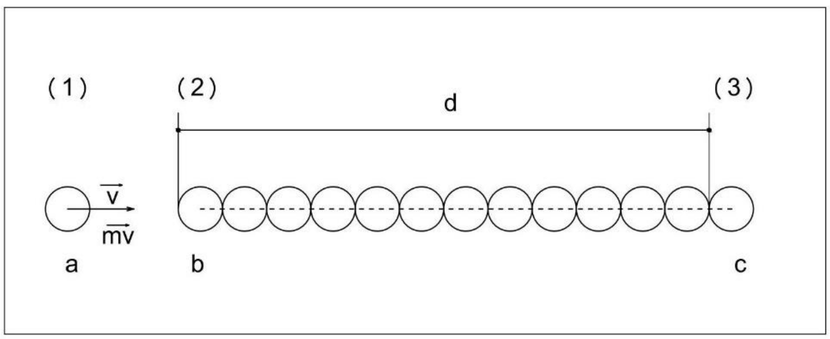

Fig. 3: Diagram of a body colliding at point (2) with rigid bodies

In this second scenario, the time between the collision and when the final body begins to move is designated as (t_2). The times (t_2) and (t_1) (from scenario 1) are not equivalent. By comparing the two scenarios described, it comes to conclusion that the speed of momentum transfer ($\overrightarrow{v_p}$) is not always the same. Therefore, we need to appropriate a new term called “Speed of Momentum transfer ($\overrightarrow{v_p}$).” That is equal to distance of the linear momentum transferred divided by the time taken.

One can suppose that linear momentum is moving itself though media with various speeds.

Study of $\overrightarrow{v_p}$, for the condition that the bodies are apart at distances:

For scenario (3), here it is considered the same scenario as scenario (2) but with the only difference being that the bodies here are spaced apart [Figure 4]. It is assumed that the diameter of each body is (d_m) and the empty space between each two body is (*s*), and the number of bodies are (*n*), and the mean speed of each body that moves the empty distance between bodies is (v_s) and the speed of momentum transfer for within the body itself, is (v_{pi}). The distance between the first body that collides and the last body that moves, is (*d*). In this case, the length of the path of transfer of the momentum within all bodies is (*n x* d_m) which totals (L). This (L) equals the total of the diameters of all bodies. The length that linear momentum advances in empty space (sum of (s) between all bodies) is equal to the total space between all bodies ($S = n \times s$). Then we have,

$d = n \times d_m + n \times s$

The total time for the transfer of momentum from body (b) to body (c), would be equal to the total time taken for the transfer of momentum within the bodies themselves and the sum of the times taken for each body to collide with the next.

$$t = t_1 + t_2 = \frac{L}{v_{pi}} + \frac{S}{v_s} \qquad (1)$$

And the speed of moment transfer is:

$$v_p = \frac{d}{t} = \frac{(L+S)}{\left(\frac{L}{v_{pi}} + \frac{S}{v_s}\right)} \qquad \text{or,}$$

$$v_p = (L + S) \times (v_{pi} \times v_s) / (L \times v_s + S \times v_{pi}) \qquad (2)$$

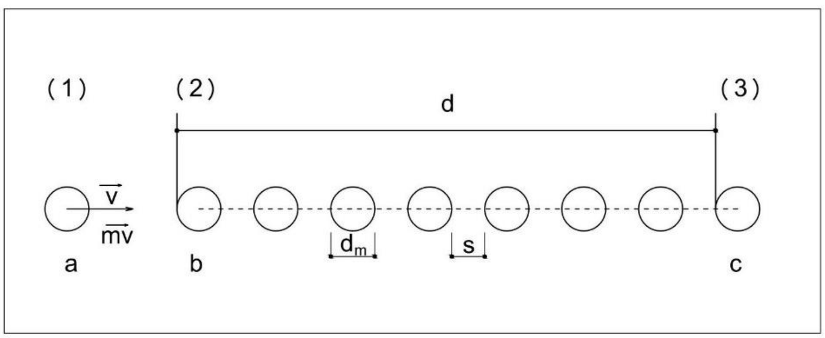

Fig. 4: Diagram depicting of body (a) colliding with (b) and causing collision of subsequent bodies

3. Light

Light is a wave of vibrations of a group of M particles that vibrate harmonically and propagate throughout space [Figure 5]. Light as an emission is the propagation of longitudinal waves similar to sound waves. If M particles are considered as per the bodies discussed above, "Study of $\overrightarrow{v_p}$ for the condition of bodies apart at distances," then the speed of light is dependant on the spacing of the M particles from one another (i.e. particle density). Thus, the speed of light in the universe varies as a result of spacing of the M particles at any point in space. If the distance between the M particles increases, the speed of light decreases and vice versa.

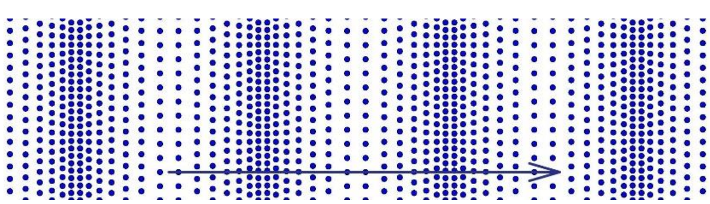

Fig. 5: Light as a longitudinal wave similar to a sound wave

For proving the MM theory and the evidence of existence of M particles, an experiment as described below is designed and conducted. The goal was to vibrate the M particles by rapid fluctuations in the orientation of angular momentum of the M particles and to study the speed of light as it propagates. The experiment was designed to be comparing the speed of light at a state where the particles were at rest and also a state when they were vibrating.

4. Experiment

4.1. Experiment Set Up

The experimental setup below consisted of a longitudinal electrical magnet [Figure 6] and a laser beam system. The electrical magnet is designed so that if the electrical current goes through one direction of a wire coil, the current on the other side is in opposite direction. By this, the force generated by the currents acting on the middle of magnet is directed to a single direction. If the direction of the current changes, the force acting on the M particles also flips.

The electrical wire coil of the magnet had 110 turns and the magnet was 46 cm in length and with 1.5cm of spacing in-between two parallel rows across from each other. An electrical switch was connected to the circuit of the wire coil to connect and disconnect the power at any time as needed.

Fig. 6: Longitudinal electrical magnet with two parallel rows of a coiled wire

In this experiment, two beams were simultaneously generated using a single laser source [Figure 7]. One of the beam rays was directed towards a set of two prisms directing the ray into a slit and onto a screen. For the other ray, it was directed by a prism towards a second prism which then directed the ray into an enclosed tube of a selected material type with glass closures to seal the tube at its ends. The tube pressure was adjusted anywhere from the ambient pressure down to 6-8mmHg. The ray emerging from the tube was then directed by a third prism and fourth prism to a second slit with the ray ultimately reflected onto the same screen as the first ray, producing an interference pattern. The shift of the fringes of interference on the screen was studied. The support structures of the ray system (the laser source, hollow tube, and the prisms) was set up to be independent of that set up for the electrical magnet and the electrical current system. The electrical magnet and current system were supported by a solid surface with a damping system below. The damping system and the solid surface were independent of the setup for the prisms, tube, and laser source so as to avoid the effects of any vibration caused by the electrical magnet unto the tube and the ray system. The resulting interference pattern of the two rays was measured at a distance of 5 meters.

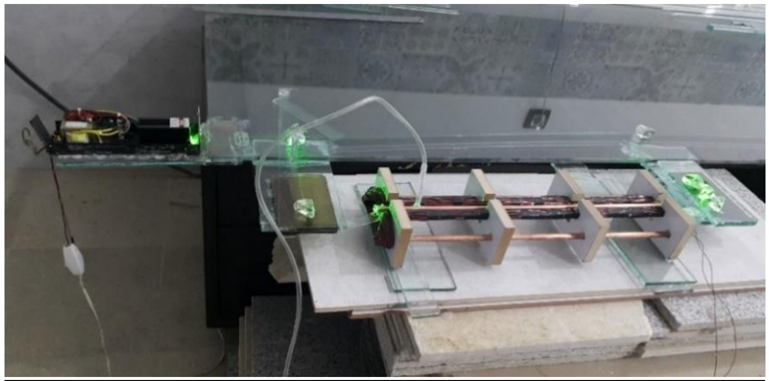

Fig. 7: Experimental apparatus setup with horizontal electrical magnet

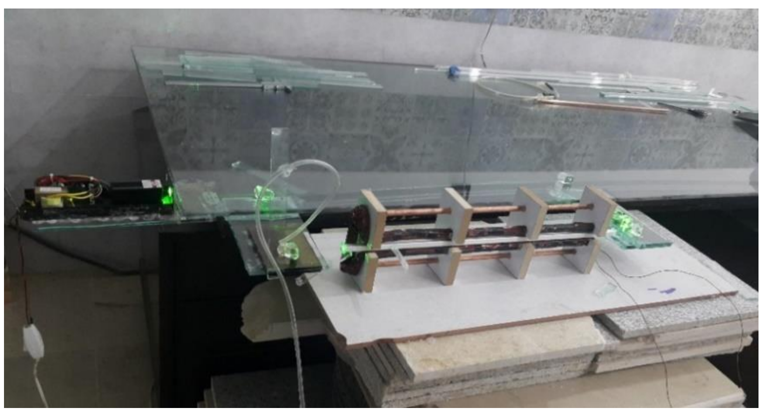

Fig. 8: Experimental apparatus setup with vertical electrical magnet

4.2. Method

The first experiment conducted was using a copper tube and connecting 220 V, AC power with 50 Hz. The tube pressure was adjusted anywhere from the ambient to 6-8mmHg. Under all circumstances and under all pressure values, it was observed that the fringes of the interference pattern shifted upon connection of the power to the electrical magnet. And conversely, it was seen that fringes of the interference pattern shifted back to their original pattern upon disconnection. Upon connection to the power source, the fringes of the pattern on the screen was such that it was shifted towards the direction of the ray emerging from the tube. The degree of shift in the pattern was in the order of ½ to ¾ of a fringe. Considering that the wavelength of the laser was 532 nm and the degrees of shift were ½ to ¾ of a fringe, thus the ray emerging from the tube has fallen short by anywhere from 266 nm to 399 nm. Based on this, calculations show that the speed of light in the tube has decreased anywhere from

173m/s to 260m/s and the delay in the time for the ray was between 8.8x10^-16 sec to 1.3x10^-15 sec. In the second experiment conducted, a light polarizer was installed at the forefront of the ray system to polarize the light before entering the same exact setup as the first experiment. The results obtained here was identical to the first experiment.

In the third experiment, the electrical magnet was oriented vertically and the same exact setup as the first experiment was conducted [Figure 8]. Again, the results obtained was identical to the first experiment. In the fourth experiment, an aluminum tube was utilized under the same setups as the previous three experiments. The direction of shift of the fringes was the same as the previous experimental setups.

In the fifth experiment, all the previous experiments were conducted using DC current up to 220 V. However, no shifting of the fringes was seen here in the interference patterns.

Note: Heat can have a great influence on the speed of light. However, in these experiments, the generated heat could not have caused the shifting of the fringes. Under all circumstances, whether at the moment of connection or the moment of disconnection, the shift of the fringes happened instantaneously. If this shift had happened because of generated heat, it should have occurred with a delay. In addition, if the heat causes the shift, the DC current should also have caused the shift as it would have also generated heat.

4.3. Results and analysis

In the experiments conducted, the power input was an AC source which is alternating. Upon connection, this alternating AC power to the electrical magnet causes the corresponding rapid fluctuations in the orientation of angular momentum of the M particles with a frequency of 50 Hz. As a result of the consequent vibrations, the distances between the M particles increase. The increase in distances between the M particles results in the increase in (S) and the simultaneously decrease in (L). The experiment signifies a decrease in the speed of light inside the tube as demonstrated by the shifting of the fringes on the screen. It means that the speed v_{pi} for within the M particles is greater than v_s (Refer to "Study of $\overrightarrow{v_p}$, for the condition of bodies apart at distances"). It is worth noting that v_s denotes the speed of transfer of momentum between particles, and is distinguished from the speed of the M particles that would be associated with any of their other vibrations. In addition, it can be concluded that v_{pi} , the speed of momentum transfer within M particles, is greater than the speed of light.

In the experiments that utilized DC current, the direction of the current does not change, and so the orientation of the M particles also remains constant. Thus, the speed of light also remains constant for the DC setups. In this manner, after DC connection, M particles are simply directed towards a single orientation.

Now, based upon the experimental results and explanations provided above, the following discussions can be derived about astronomical and cosmological phenomena.

5. Bending of light near stars

Bending of the light from the source as the light travels towards the observer after passing nearby massive stars, incorrectly termed Gravitational lensing, is in fact due to variances in the M particle densities around the stars. Vibrations of M particles closer to a star is greater than those farther away. As a result, the density of the particles around a star varies in such a way that as the distance from the star increases, then so does the M particle density.

As light travels through a path of higher density M particle, its speed is more than where it travels through a path with lower density. For the purpose of investigating of bending of light near stars, two nearby paths (1) and (2) of M particles are considered [Figure 9]. Path (1) is farther from the star as compared to path (2). It is assumed that particle (a) from path (1) and particle (b) from path (2) have simultaneous spherical vibrational waves. As the speed of transfer of vibration to the particles ahead along each of the paths depends on the distances between particles, particle (c) gains vibration sooner as compared to particle (d). Particle (c) and (d) ultimately gain the vibrational motions and subsequently these propagate to space as waves. The vibrational wave of (c) as compared to (d) is ahead in time, and they combine at particle (e) causing it to vibrate along the path seen in [Figure 9]. This explains the bending of light nearby a star.

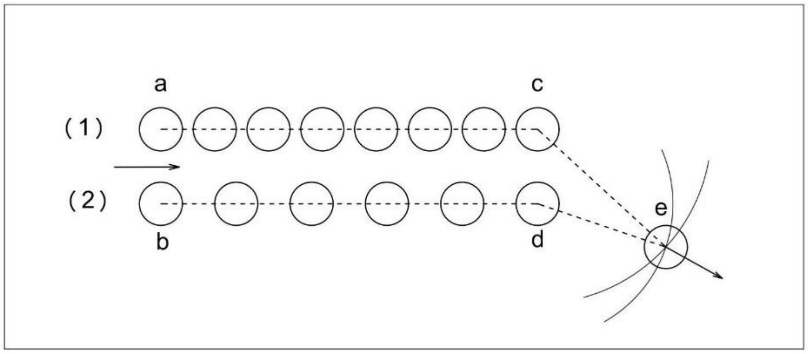

Fig. 9: Path (1) and Path (2) of M particles around a star

As shown in [Figure 10], as light approaches, it bends about the star.

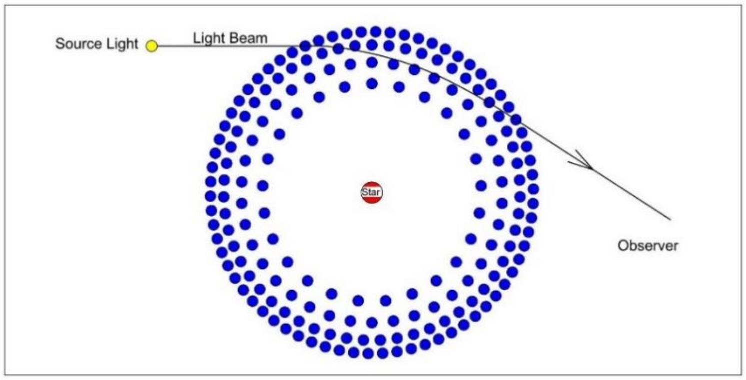

Fig. 10: Bending of light near star

6. Redshift and blueshift and curvature

The phenomena commonly known as redshift and blueshift are not solely due to the velocity of a light-emitting source relative to an observer. It is commonly believed that the shifting of the wavelength of light from faraway objects like stars is only due to the speed of those objects relative to the observer. However, “MM Theory” explains that this shift in the wavelengths can also, in reality, be the result of the variations in the density of the M particles among other factors. As light travels from the emitting source to an observer, it passes through media of different densities. Thus, its speed, wavelength, and direction are affected according to the space pressure, distance from the star, and variations in the densities of M particles. In addition, the speed of the light-emitting source away or towards the observer also affects the wavelength. The phenomena of redshift and blueshift are thus explained as a result of many contributing factors as light travels through space.

With the passing of light through space, it travels nearby many massive bodies. As a result, the wavelength of light can be affected many times over and over as it travels and so can its direction. Consequently, what is seen as redshift or blueshift or the direction of incoming light, does not define a certain distance or position of a star or object being away from the observer as is commonly believed.

7. Radio waves

Oscillations of an electron or electrons along a path or through a metal conductor, produces radio waves. These radio waves are transverse waves, and are waves of fluctuations in the orientation of angular momentum of M particles throughout space [Figure 11]. The frequencies of these waves are with the same frequency as that of the oscillating electron(s). Here in [Figure 11], the line of oscillation of the source electron(s) is perpendicular to the plane.

Depending on vertically, horizontally, or any other orientation of oscillating electron(s), corresponding converse orientations of the polarized radio waves are produced. If the electrons are oscillating vertically, then the polarized radio waves will be horizontal – and the same applies vice versa. In the space near or close to the plane that is perpendicular to the conductor rod and passing through the centre of the rod, the greatest intensity of radio waves are observed.

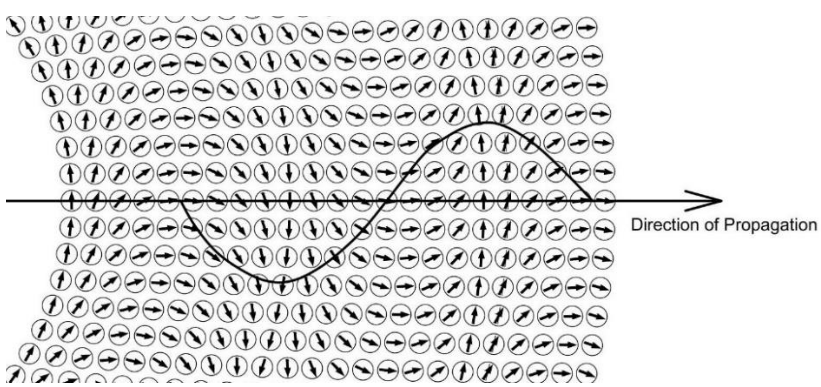

Fig. 11: Model of fluctuating and propagation of radio waves in space

8. Comparison between light waves and radio waves

Any interactions between M particles involves both linear momentum and angular momentum of the particles. For the light, the transmission of light is the result of collisions of M particles one after another [Figure 12]. There is minor change on the direction of angular momentum of the M particles in case of light and in fact most of the change would be in their linear momentum.

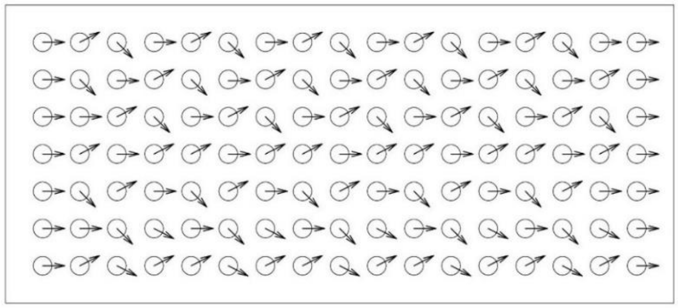

Fig. 12: Transfer of linear momentum of M particles in space

One of the most striking differences between radio waves and light waves is that generally the radio waves can penetrate through walls and other solid objects while the light waves cannot. Radio waves are transverse waves which render them to more readily transmit through solid bodies. In more detail, a radio wave is in fact the fluctuating of orientation of the angular momentum of M particles, and it acts on the particles perpendicularly along the direction of the wave's advance. This enables the wave to transmit through and beyond objects. The radio waves are more readily able to pass through than the case of light waves, which transmit via longitudinal action. In the case of light wave, the linear momentum transmission is greatly impacted by the object's constituents, the atoms and molecules, which are in the direction of travel. This prevents the light wave from easily passing through certain objects.

9. Electricity

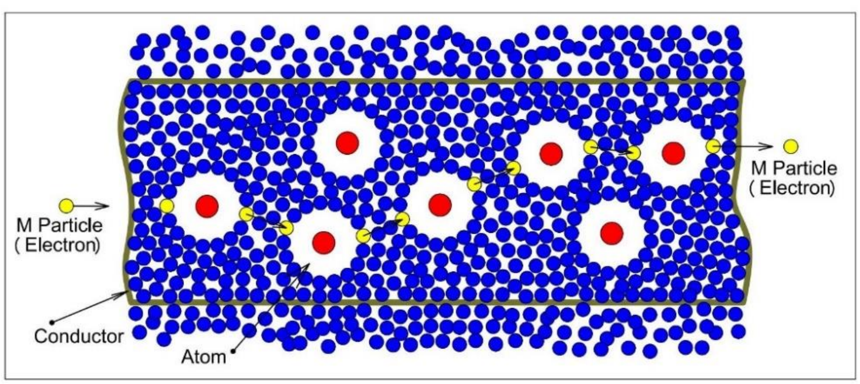

Fig. 13: Electrical current flow through a conductor

The phenomenon of electricity is the result of motion of M particles through a conductor or between two objects having imbalanced M particles around their atoms and molecules. For the case of current

electricity, those M particles that have linear momentum, namely electrons, transfer their linear momentum one by one to the next through a conductor. The transfer of linear momentum occurs as a result of the interaction of M particles at the surface and in-between the atoms and molecules [Figure13]. Any object that has a greater propensity to do this is a better conductor.
Under normal circumstances, M particles on the surface of atoms and molecules between two objects or between two points within an object are balanced. Static electricity is the result of the state of imbalance of M particles.

10. Magnetism

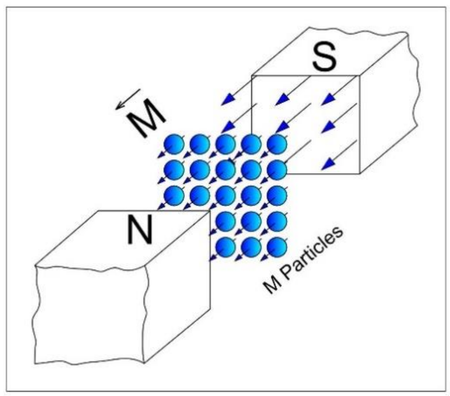

Fig. 14: The M Domain Direction as denoted by $\vec{M}$

In space, generally, the direction of angular momentum of M particles as a whole are in equilibrium, or in balance. However, if the angular momentum of M particles are oriented towards a single direction, then the phenomenon of magnetism is observed. The whole domain of M particles are directed towards a single direction, denoted here as “M Domain Direction” (MDD), or ($\vec{M}$). The direction of ($\vec{M}$), defines from S to N of magnet, as shown as per [Figure 14].

11. Photoelectric effect

In regards to the photoelectric effect, the emitted wave causes an influx of M particles onto the surface of atoms and molecules which causes other M particles to be ejected. If the light wave influx is sufficient beyond a certain threshold, then this will cause the emission of one or more “M particles” to become electrons.

12. Heat and Thermal radiation

Heat can be explained as a result of two contributing factors. Considering, for instance, for a solid object hammered or a gaseous fluid undergoing rapid compression, the first factor is that of the moving back and forth of the atoms or molecules with respect to one another. For the second factor, for example, if the object is heated, it also affects the arrangement of the M particles around atoms and molecules. The outer shapes of the atoms and molecules change rapidly, causing surface vibrations, while the M particles stay along the surface [Figure 15]. These two factors always affect one another.

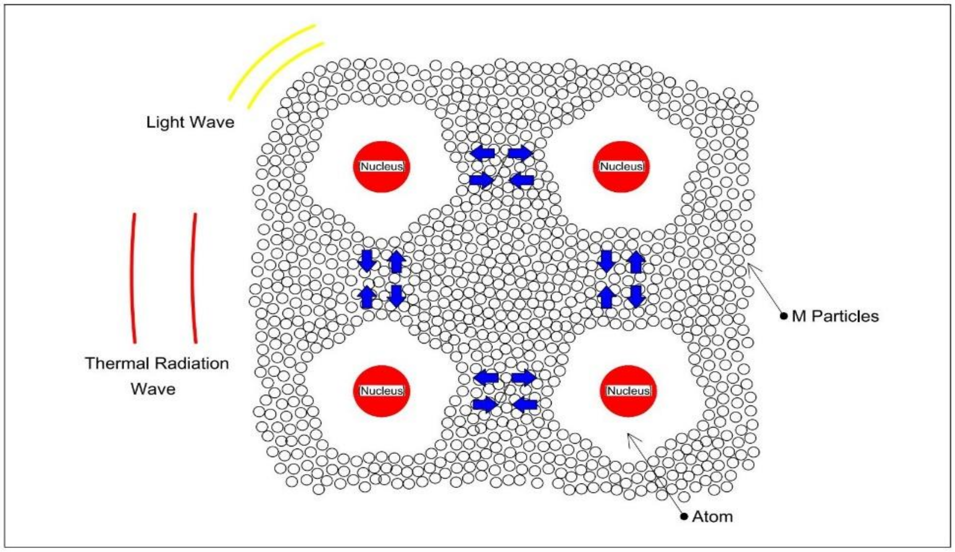

Fig. 15: Light wave and thermal radiation wave from atoms and molecules via M particles

Any objects that has a temperature greater than absolute zero, emits waves. As an object is heated, thermal radiation and at the same time surface vibrations of atoms and molecules are manifested. In the beginning, the frequency of these waves are less. As the temperature increases, at first thermal radiation is observed. However, then, as the frequency of the surface vibrations of atoms and molecules increase to reach into the visible light spectrum, red light will next be observed. After the temperature is continued to be increased, increasing the frequency of vibrations of the surface of atoms and molecules, then the emission of yellow light will be observed, and so on etc. Light is a result of the vibrations of the surface level of atoms and molecules, while a thermal radiation wave is the result of the moving back and forth of the atoms or molecules with respect to one another. After producing these waves, they are transferred by and through M particles (Derived from the conceptual model shown in [Figure 15], it can be concluded that surface vibrations of these atoms and molecules are such that they can only produce longitudinal waves as light waves in the M particles in the surrounding space. As the light produced from the surface of atoms and molecules propagate spherically throughout space, thus light waves are longitudinal waves and cannot be transverse waves.)

13. Dark matter

The unseen matter in the universe, termed “dark matter” and credited as an explanation for many questions and mysteries that have arose in modern physics, is in fact M particles. Since M particles have mass, they account for the missing mass in the universe.

14. Conclusion

In this part, a new particle called “M Particle” is presented and its properties and behavior are described. A new term in physics, called “Speed of Momentum Transfer” is also introduced and defined. It comes to conclusion that light is a wave of vibrations of a group of M particles that vibrate harmonically and propagate throughout space. The propagation and behavior of light is in a waveform manner. Light is a longitudinal wave and advances by "M Particles" through distance and space. An experiment presented here showed that the speed of light decreases by rapid fluctuations in the orientation of angular momentum of the M particles. The variances in the M particle densities around the stars accounts for the bending of light as it passes near stars or other large mass bodies. Astronomical and cosmological phenomena including redshift and blueshift were elaborated on. It came to reasoning that the space pressure, distance from a star, and variations in the densities of M particles increase complexity in the rationale behind redshift and blueshift than has been previously thought of in the past. It was also shown that radio waves and light waves differ in their manner of transmission in that the orientations of these waves differ. Radio waves are transverse waves through M particles while light waves are longitudinal ones. This paper also explained static electricity as an imbalance in the M particles of objects or points within an object. Current electricity was explained as a flow of M particles, namely electrons, from surface to surface of atoms and molecules. Magnetism was briefed as the directing of M particles' angular momentums in a single orientation in space. MM theory was also able explain the photoelectric effect as an influx of particles which displaced other M particles from the surface of atoms and molecules. It is also concluded that heat is the vibrations of atoms and molecules with respect to each other in any object that has temperature above absolute zero and thermal radiation is the wave of these vibrations, which are conveyed by M particles. In addition, the results of an experiment here showed that the speed of light, c, is not constant. Therefore, the theories of Special and General relativity are denied.

Acknowledgment

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References

References are classical physics textbooks.