Creating Matter from EM Radiation

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The goal here is to probe more deeply into one aspect of External Gravity theory. I refer to expanding on the connection with the EM spectrum. Gravity is beams and emulates the properties of all forms of radiation. It exists as the beginning of the EM scale. At the far end the spectrum is extended to include matter. This implies that matter consists of some wave structure. The structure of space is radiation and matter is a result of distortions within that medium. Essentially matter is created by intersecting beams and exists as modified and interconnected versions of radiation beams.

1. Introduction

We start with a brief review of the External Gravity model. External Gravity is beams that pressure or push on massive bodies. The beams are essentially long wave radiation, occupy the very long wave region on the electromagnetic scale, and travel at speed *c*. The beams are the structure of space and push upon matter from all directions in the void of space causing most heavenly bodies to exist as globes. The wave within the beam applies the pressure and is like a virtual particle which I call a paep. The beams penetrate matter and are diminished allowing distant bodies to be attracted due to the lesser gravitational push. Upon exiting beams acquire an added component to their motion. The perpendicular push applied by the spin of the body must be merged with the forward velocity and direction of the motion. Essentially the beams bend slightly. The complexity of these bent beams joining the otherwise linear beams throughout space creates a myriad of distortions and pushing situations.

For our viewing platform light and EM radiation are treated as beams with transverse waves in motion. As such radiation is assumed to have direction and velocity for logical analysis. All interactions are seen as modifications to linear motion. Assuming linear motion allows correlating activities such as gravity and magnetism via graphic representation.

2. Waves

Light is waves. The idea of light also having a particle nature is simply realizing that upon encountering matter, the slightly non-linear structure of the waves, due to their altitude component, causes impact. The capacity to impact is one of the qualities of matter particles. The frequency of waves determines the total impact of beams within a time interval. Essentially that is the number of times waves splash down. The highest frequency, highest energy, beams most nearly simulate matter. While the External Gravity system is primarily a way to understand gravity, the extension of its waves into high frequency EM beams gives us our best view of how matter is formed.

The concept of waves in space has been distorted by analogies to ripples in water from dropping a stone. This has been used to claim that a moving source doesn't change the wave flow relative to observers. This ignores situations of continual emission by moving bodies. For relating to waves traveling in the aether consider a boat causing wave pulses to move toward shore. Of course the environment is so different for spatial motions that the analogy is only partial. There is no surface, a 3 dimensional flow and uncertain medium. But it gives us a reference against which to analyze EM waves.

In the analogy the pulse is the primary mover. The wave situation becomes much harder to discuss because it is not permanent. Before the boat came by there were no waves. As it approached, the first waves appeared at shore. As the boat gets nearer the waves get larger and their direction of flow changes slightly. When the boat recedes the waves die down and end. To analyze this in detail we need to breakdown the overall flow into pieces. Rather than breaking the wave into particles as in particle theory, I can retain the overall flow and break it into pieces by drawing hundreds of lines of the flow toward shore. Each line can vary slightly in length, direction and in altitude. This two dimensional breakdown simulates string theory and can contain one dimensional particles. Thus I have beams carrying my paeps when discussing gravity. My paeps are the transverse wave denoted by changing altitude within a linear beam.

3. Beams

The sun and planets mostly retain their distance of separation so linear analysis is not used. However for comparing the wave effect variance from one planet to another, a linear view is useful. Thus I have the pulses of gravity or of light travel as beams. Note that the orbital motion of planets means the beam cant be considered straight by both source and receiver. So the rotation of the central body carries over in some form to the receiving orbital. You cant get to this point and apply the rotation push without breaking the flow into linear pieces.

The pushing is done by the pulses-waves. The pulse-wave was caused by the rotation of the emitting central body. Along with bending of the beam's direction the rotation causes repetitive sin waves to appear within the beam, thus the wave. As beams depart they continuously rebuild and will merge in those beams that didn't pass through the central body with those that did. The proportion of a beam that originated via the central body beams obviously decreases with distance.

While expanding outward, continual sourced waves overlap each other laterally. The earlier emission will have traveled outward more than later emissions. Overall there will be a secondary flow attributed to the moving source.

Three dimensional space has no surface so picturing an emission means expanding the usual 2 dimensional view of waves to three dimensions. As beams depart the separation between parts

of the radiation increase to a point where the original picture is distorted enough that pieces matter. Thus a series of lines called beams is the better representation of the ongoing flow. The beam then carries the secondary flow as transverse waves. The usefulness of beam structure is supported by the need to merge in non-source waves as the distance increases. At some point a linear outward flow is what is left. This paper will use the beam for analysis.

As mentioned previously for gravity, all EM radiation beams can be slightly bent or twisted either within an intense gravity field, within a magnetic field, or upon encountering, penetrating, and exiting massive bodies. Once bent, a beam may encounter other beams abnormally such that the encounter points intersect as line crossings. Those crossings will be subsequently assumed to be electrons as they have no mass and imply rotation. Thus bent beams can create matter and do so more readily in regions of existing matter or intense gravity. A question is whether matter can be initially formed from the interactions of a bent wave as it twists and wraps around itself or whether the intersection of multiple waves from different directions is required.

We see here a key distinction about matter. The source beam and its wave(s) continue on while the intersections remain in place. The intersections that remain define matter.

4. As Beams Exit Rotating Massive Bodies

Exiting solar beams apply lesser pressure to planets than do beams from other directions. This nets out gravity to form 'attraction' of planets toward the sun. For this paper however we are interested in understanding their direction of travel.

Picture a straight line through the center of the sun. A gravity beam won't quite remain straight as it approaches center. The sun is rotating (spinning). The beam is being pushed in one direction by the atomic particle contents of the sun into a slightly curved path. It passes very near center, after which the pushes impact the beam from its opposite side. By the time it exits the entry point and exit point connect directly through the center as a straight line. It is upon exit that the beam is maximally shifted to the left. An incorrect guess about the shift of the wave is dividing the surface rotation velocity by the speed of light or 2/300,000 for the sun. In fact it is the angular lateral push that is carried along. The wave can carry the two linear force components that made up the original circular motion of the surface. It is mistaken to believe that we can't convert angular motion to linear motion.

The beam continues on in its most recent direction which is defined as bent from the straight up direction. The bend is at a maximum at the surface. As the beam rises it mixes with ever more perpendicular non-penetrating beams. An intersecting motions and the mixing of irregular beams are greatest at the surface. We see this activity at the sun as solar flares. The sideways impact upon exiting beams suggests we first view them as two dimensional transverse waves since two directions, up and left, of force were applied to them.

The example was a beam passing thru the center of the sun. Beams flow thru it in all directions and exit with various distortions. Most of these beams we don't see as they aren't directed toward earth. Some other beams that exit very near the equator we do see depending on their angle at time of entry/exit. For one example a beam penetrating at a higher latitude and passing by the polar axis will have traveled less distance thru the sun and encountered a slower moving surface. Waves passing thru but not near the axis acquire irregular wave lengths relative to observer. The waves caused by encountering rotation are primarily two dimensional as we might view them on a piece of paper.

To restate the formation of waves within beams, massive bodies move mostly via rotation. Planets surfaces are an example and what we focus on here. Then any motion of matter causes exiting beams to bend. The micro world in which this interaction of matter with radiation occurs has EM waves traveling at speed *c* being impacted laterally by matter particles traveling much slower at the rotation rate of the spatial body. The particles are discreet and the beam is essentially continuous. Therefore the beam will not be cut when impacted by atomic particles, but part of the flow will be pushed to the side by each particle impact. The impacts are repetitive and cause the wave nature of the beam. At the same time the overall flow has been redirected.

5. Inspecting Traveling Waves

An exiting beam has been given sideways motion at the source relative to other beams. For future reference the beam is continually rebuilt by merging with its neighbors. The rebuilding causes waves within the new beam. We can assume the waves are originally transverse and exist in 2 dimensions. Ultimately beam activity near the observer may add the third dimension.

During its travels the imbalance of radiation beams may result in some push from other directions giving a bit of dimension to the beam. Consider a beam traveling through space in a containment tube like a straw. The beam travels along the inside surface of the tube, revolving within the tube while traveling forward at velocity *c*. As the beam moves it presents a wave picture to observers viewing it from any side. In this way a 3 dimensional beam gives the 2 dimensional transverse wave appearances to observers who will see the wave perpendicularly. There is a repetitive wave length as the beam wraps around within the tube. The wave length for any beam defines its place on the EM spectrum.

Since space must be continuously filled, we must accept that the tube is not otherwise empty but is intersected continuously from all directions by other beams. We cannot let this fact obscure our important view of a linear travel and significant waves occurring within the beam. It is just that the nature of the traveling beam is constantly changing as nearly parallel beams merge in and out.

6. As Beams Enter Moving (Rotating) Masses

Linear gravity beams that are the structure of space when viewed from the perspective of a single point converge on that point from all directions. When viewed for space as a whole the lines travel straight in all directions mapping out 3 dimensional rectilinear space. Where there is no net gravity force to distort beams, there is no potential for interaction causing twisting or interconnections. In accord with our understanding of light beams, they don't interfere with each other even when coming

from different directions. Distortion requires lines to interconnect. Lines themselves have no hook to retain connection. It is when this equilibrium is disturbed that activity occurs that leads to EM radiation and matter creation.

For incoming beams near a body's surface, such as earth there can be some gravitational bending to the beam if it is not coming straight down. The bending effect is more pronounced for radiation beams that came from the sun and carry waves. These beams will encounter a bit of central focusing due to earth's gravity so that beams may get closer together. The wave altitude of one can overlap the adjacent beam. When the beam lines overlap the overall wave length decreases. Thus the frequency of waves increases. There is now a narrower beam with more pushing wave structure. The beams now contain heat and some penetration capacity in their beams to heat matter and cause sunburn.

Another distortion of incoming beams occurs due to the rotation of the receiving planet. The rotation creates a sideways motion, however small, relative to the incoming beam which distorts and relatively red or blue shifts it.

For matter creation, first review 'external gravity theory' in reference to the magnetosphere, in which beams that penetrate earth from the back exit toward the sun. They merge with the incoming solar beam 'wind' in nonstandard directions. As bending and interconnecting occurs the nature of the beams change. The shorter the original wavelength the more likely it is that its waves will interconnect others.

Assume the waves of a beam occur in three dimensions. We are then dealing with coils. Picture a spring from a pen. If I lay another spring across it perpendicularly nothing changes I can push either spring along. However, if I lay them parallel aiming north, push them together and then switch one to aim easterly, perpendicular to the other, they cross at a point and I cannot push one without dragging the other along. It took looping to form a connection. Since the connection has no mass it is an electron. The connected loop is like hydrogen. Laying multiple springs and twisting some to head east gives a sequence of intersections with the springs going north. The flow within interconnecting coils varies directionally so the contact point suggests spin. This explains its function and appearance as our electron. The wire (wave) forming each full loop of a spring gives a common weight per loop across the whole spring. This leads to us calling the wave a proton or neutron. The center of the pertinent coils is where the weight of matter is summed up and we call it the nucleus.

We have depicted the rotating curved space structure in which linear beams are distorted into coils by proximity to rotating surfaces. Viewed from the side the beams appear as waves, but viewed from the front or back parallel to the travel path, we would see loops. All matter is made up of coils which are extensions of the radiation waves. As the complexity of connections increases this leads to atomic physics in which the structure of matter is analyzed. The concept of charge originated with magnetism and is assumed to exist within atoms. In reality the separation of electrons and protons has nothing to do with positive and negative charges. For example the spin of the electron is the net of pushes in two directions at a contact point.

7. Assembling an Atom

There are numerous ways to place springs and develop a sequence of contact options. Perhaps the options can be associated with the periodic table. I have theorized some connections using 3 orthogonal springs and some with 2 springs of different fixed sizes. The size of the original wave coils matters for determining the frequency of crossings. Hydrogen is simple as a series of crossings of 2 springs giving one crossing for every loop. The atomic number and weight are determined by the number of electrons. Helium either joins 4 loops into 2 crossings or has 2 crossings of 2 different sized loops. Possibly all loops produced by solar waves are of one size and those created by escaping the rotation of earth are of another size. Appropriately the series of interconnects can be plotted along a line on a 2 dimensional board.

For matter being created from a single beam we discussed the bending of coils such that nearby coils come together and ultimately can overlap and make contact. The loops from one coil can partly bend in back of the subsequent coil. The flow of coils continues but the contact point remains at the bend point. The interconnect point that signals the existence of matter remains in place. When coils within a single beam are in contact there is an initial point of contact and usually a final point. So contacts are in multiples of 2. At contact origination the apparent spin is one way and at departure spin is opposite. Adjacent contact points switch from top to bottom suggesting a toroid like structure around each coil. They may repeat every 1½ loops and are in different orientation until the second occurrence. The touching of tangent lines rather than crossing is unpaired and suggests free electrons.

The looping overlap meets the conditions of matter. All coils are attached in the stream. An intersect point can have three dimensions, all orthogonally related. Coils have weight because they deflect external gravity beams. The effect is called spin. Thus, like electromagnetic copper coils yield magnetism flowing down the center, the center of a group of coils acquires an existence. Instead of a flow of magnetism, the center becomes a concentration of matter that is assigned the positive charge and given the total weight of the proton and neutron coils.

With coils intersecting from multiple directions, some may be included within the maze of coils bound together which do not participate by intersecting others coils. The weight of a nutron must be the weight of a coil, while the weight of a proton is the weight of an intersecting coil whose electron weight is counted separately.

8. The Atom

This paper suggests a loop and its interconnection with adjacent loops to be an atom. The crossings are electrons. Crossings at top of loop, bottom of loop, internal crossings, and tangents suggest electrons at various shell levels. The enclosed empty spaces relate to nuclei particles such as protons and neutrons. The concept of weight is the total paep pushing pressure that passes through one loop. The more coils forming an atom, the more weight and the more protons and neutrons.

In quantum theory, energy levels of atoms are a function of electron shells. The shells and their energy are determined by

the distance of the contact point – electron - from the flow center of the loops. The innermost is the K level and holds two electrons for all but hydrogen. One spring crossing another can have 2 contact points. Adding another spring allows up to 8 more crossings of the two original springs. Picturing these crossings is worth pursuing. Springs joined that are relatively parallel suggests magnified atoms will appear diagonally across the board.

An extensive topological and pictorial analysis of deformed loops is displayed in 'Fieldstructure" as presented by Don Briddell [1]. Using knotting and weaving, he similarly addresses the resulting structure of matter.

References

[1] Charles Donald Briddell, "The Neutron: Modeled as Fieldstructure", *Proceedings of the NPA* **8**: 521-529 (2011).

[2] Paul Schroeder, **The Universe is Otherwise** (Booksurge/Createaspace, 2006).

[3] Paul Schroeder, "Paeps: External Gravity Particles (The Universe is Otherwise: Part 1)" (2008), http://www.worldsci.org/php/index.php?tab0=Abstracts&tab1=Display&id=3224&tab=2.

[4] Paul Schroeder, "The Spectrum of Existence (The Universe is Otherwise: Part 2)" (2008), http://www.worldsci.org/php/index.php?tab0=Abstracts&tab1=Display&id=4152&tab=2.