

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 intend to expand on the connection with the EM spectrum. The source of gravity is pushing beams and it duplicates the properties of all forms of radiation. Gravity radiation exists as the beginning of the EM scale. At the far end the spectrum borders on including matter. This implies that matter consists of some wave structure. The overall structure of space is radiation. Matter is a result of distortions within that medium. Essentially matter is created by the intersecting of beams and exists as modified and interconnected versions of radiation beams. This is therefore also 'Beam Theory' and replaces Quantum Theory as a module for future atomic analyses.

1. Introduction

The original geometric structure of space is gravity everywhere. Gravity produces an external pressure. As such it must be in motion and is best represented as pushing beams. Investigating beam characteristics is not unlike particle physics studying the characteristic of unseen particles making up the universe. An analogy would be string theory vs particle theory. The original gravity beams are straight lines and do not interact with each other, either from the side or head on. Every point of space is touched by beams from all directions and in 3 dimensions. For there to be matter within this universe, it must have format that distinguishes it from radiation beams. A simple box in a 2 dimensional picture of space is insufficient as it could be formed by lined up radiation beams. Even circles have the same issue using many more beam lines as tangents to represent the circle. To be other than gravity beams, matter must continuously relocate while retaining its form. Essentially matter must spin or rotate continuously or it is not matter. Being continuous introduces the concepts of time and of motions of matter. The motion of gravity beams provides a speed limit to all motions which we call C . Since that which is in motion must be matter, radiation beams set a limit to the sizes of matter. While pressure is wide ranging, we can limit the width focus on the pressure using beams which may vary in some manner from their neighboring beams. We are interested in examining various beams.

Pushing beams coming from all directions apply pressure that holds matter together. The spin feature of matter allows it to remain in place as we will investigate. The beams do penetrate and subsequently exit the matter. In response the spin of the matter will redirect the beams to some extent. Beams travel straight in the original picture of space but any observer will be in motion somewhat perpendicular to that motion so the path will appear curved. This applies to a sender located on the spinning matter or to any external recipient within the universe. This modifies the original description of beams traveling in straight lines. Potentially curved beams upset the balance of only straight beams don't interact with other beams. We are most

interested in understanding how beams are curved and how curved beams interact with other beams.

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 can penetrate matter where they are diminished allowing distant bodies to be gravitationally attracted. Attraction is the net push of incoming undiminished beams with exiting diminished beams. Upon exiting from matter 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 of radiation. Giving them linear motion allows correlating activities such as gravity and magnetism via graphic representation.

2. Waves

Light is waves. Waves are a means of distinguishing vibrations within a field. 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 EM 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 gravi-

ty, 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 frequency changes of altitude within a linear beam.

3. Beams

The sun and planets mostly retain their distance of separation so beam analysis is not useful. However for comparing the wave effect variance from one planet to another, a view using beams 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 can't be considered straight by both source and receiver assuming space is a fixed 3 dimensional concept. So the rotation of the central body must carry over in some form to the receiving orbital. The next point is that in order to apply the rotation push pressure we must visualize the flow as both lines and particles. This relates to the issue of light as waves and particles. However both the push and the wavy line are contained in the single coil. Distinguishing of particles from waves has caused most of the problems of physics. The solution is that they both apply pressure in their forward motion.

Gravity 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 curls to appear within the beam, thus the sin wave. As beams depart they continuously rebuild and gradually will merge in those beams that didn't pass through the central body with those that did. The proportion of a beam that originally penetrated the central body 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. There will be a secondary flow overall 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 adjacent 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 best 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.

For gravity and 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. Replacing Quantum Theory

A lot of physics research has been allotted to Quantum theory particle creation. The Hadron collider crashes ever shorter wave beams. Is this search for the theory of everything worth the high cost, especially when each result will always be only an interim step on the path toward infinite frequencies? The output that becomes classified as fleeting particles is simply the achievement of higher frequency radiation. Calling the output particles misinterprets the dominant factor of motion. The high frequency end of the Em spectrum is where the classification of accelerator output should be recorded.

The underlying base of Quantum theory is nonsense. The assignment of the field concept to everything clouds the details of what is going on. Quantum took hold by detecting a particle nature of light now called a photon. At great distances light no longer dims but switches on and off while retaining its brightness. It is misleading that the cause of this signaling is assigned a particle nature. It is so obvious that the on off nature is caused by the relative lateral motion, however minor, of all things relative to all other things. The photon and similar particles such as gluons and gravitons are phony.

Consider a point in space. Beams of radiation approach that point from all directions in all 3 dimensions. For example one or more of the arriving beams may come from the sun. The number of beams received from a general direction depends on the size of the point. There are a finite number of beams arriving at the point. As it moves laterally relative to the light source a beam can be replaced by a nearly parallel beam from the similar direction. Continuing lateral motion brings the next light beam into focus. Our reception of signals rather than full body views of stars is a case in point.

The particle search via accelerators and colliders includes the boson field search for flow particles and the fermions search for vibrations signaling matter fields. The beam theory suggests that

the boson search produces higher frequency of waves by crunching coils closer together. The addition of $\frac{1}{2}$ coil causes subsequent flow to be in the opposite direction yielding curves on the 2 dimensional traces. The fermions search produces more intersections of oppositely moving beams, yielding more vibrations, signaling more intense matter.

Other particles such as quarks, leptons, neutrinos etc are simply stages of frequency or connections within radiation. Quantum theory says their Higgs field is the determinate of whether particles have mass. External gravitation says the local environment makes that determination. If a particle has spin relative to the local environment it has mass. If not it is a nothing. The spin is of the particle whole and/ or of its parts. The Higgs issue raises another complicating issue called the concept of breaking symmetries. That can be more simply stated as the effects of any distortion of or changes relative to the background such as motion. The background in External Gravitation is the flow of gravity beams and is obviously necessary to account for the variation of the net gravitation at each point as each is dependent on the rotation of 'nearby' matter.

5. As Beams Exit Rotating Massive Bodies

Exiting solar gravity beams apply lesser pressure when they arrive at orbiting planets than do gravity beams from other directions. Netting out these two gravity pressures forms 'attraction' of planets toward the sun. For this paper however we are interested in understanding the planet's 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 atomic particle pressures impact the beam from its opposite side. By the time the beam exits, a line between the entry point and exit point would pass directly through the center as a straight line. We are mainly interested in when, upon exit, the beam is maximally shifted to the left. By how much is it shifted? An incorrect guess about the shift of the wave would be dividing the surface rotation velocity by the speed of light or $2/300,000$ for the sun. That calculates linear shift. In fact it is the angular lateral push that is carried along. The wave carries 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 I define as bent from the straight up direction. The bend is maximal at the surface. As the beam rises it mixes with ever more nearly parallel non-penetrating beams. Intersecting motions and the mixing of irregular beams is greatest at the surface. We see this activity at the sun as solar flares. The sideways impact of rotation upon exiting beams suggests we first view the beams as two dimensional transverse waves since forces in two directions, up and left, were applied to them.

The example above discussed a beam passing thru the center of the sun. Beams flow thru the sun in all directions and exit with various distortions. Most of these beams we don't see as

they aren't directed toward earth. Beams that exit very near the equator we may 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 exits from 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.

The formation of waves occurs within beams because massive bodies move mostly via rotation. Planets surfaces provide the motion that we focus on here. Any motion of matter causes exiting beams to bend. The micro world, in which this interaction of matter with radiation can be measured, 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 becomes redirected.

6. Inspecting Traveling Waves

The source of waves/.vibrations can become complex. Beams that exit from rotating masses acquire curvature. As they departed and crossed nearly tangent non-exiting beams the initial intersects give a 2 dimensional wave picture. As they encounter differently oriented beams near the destination, the structure can become somewhat 3 dimensional up to fully 3 dimensional with up to 90 degree intersects. Also, to fill ever expanding space when departing a mass, the width and height of a beam naturally increases. Multiple curves of the motion cause our picture to become that of motion along the inside surface within a straw. The result is a series of coils such as in a spring. We are interested in considering the interactions by differently structured beams.

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 beams gain transverse waves and exist in 2 dimensions. Ultimately beam activity upon arrival may add the third dimension.

For the third dimension of shifts by 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 occupied 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 travel-

ing beam is constantly changing as nearly parallel beams merge in and out.

7. Beams Approach and Enter 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. Gravity beams are in accord with our understanding of light beams, ie. the beams don't interfere with each other even when coming from different directions. Distortion requires lines to interconnect. Lines themselves have no hook to retain a connection. It is when the beam equilibrium is disturbed that activity occur which leads to EM radiation and subsequently to matter creation.

For incoming beams near a body's surface, such as earth there can be some gravitational bending of 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 beam can overlap the adjacent beam. When the beam lines overlap, the wave length of the merged beam decreases. Thus the frequency of waves increases. There is now a narrower beam with more pushing wave structure. Light beams would 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 an example of matter creation review 'External Gravity Theory' in reference to the magnetosphere. 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.

Lets examine a beam whose waves 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. Close frequent coils keep the springs separate as if two pencils. 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 perti-

nent 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. The key is direction of motions. Electrons are connections while protons are weight summaries. Neutrons are the same as protons. There is no need for distinction once the charge issue is eliminated. Further understand that the spin of the electron is the net of pushes in two directions at a contact point.

8. Assembling an Atom

There are numerous ways to place springs and develop a sequence of contact options. Perhaps the many interaction 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. Probably 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.

Matter may be created from a single beam by 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. This 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 the originating contact point the apparent spin is one way and at departure point the spin is opposite. Adjacent contact points switch from top to bottom suggesting a toroid like structure around each coil. Contact may repeat every $1\frac{1}{2}$ loops and are in different orientation until the second occurrence. The touching of tangent lines without actual crossing is unpaired contact 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 gravity 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 fall within the maze of coils but do not participate by intersecting others coils. These are neutrons. The weight of a neutron must be the weight of a coil, while the weight of a proton is the weight of the coil whose electron intersection point weight is counted separately.

9. 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 coils themselves are the masses of the atom. As with magnetism within coils the weight of the coils is focused on the center. The concept of weight is the total paep pushing pressure that pushes on one loop. The more coils forming an atom, the more it weighs and the more protons and neutrons that are included. Contacts of loops are electrons as previously mentioned. Physics has chosen to relate other atomic weights to electrons so that protons and neutrons weigh 1836 and 1842 times as much as an electron. The reason for the difference is that the weight of the electron is excluded from the proton. Were it included we would see both proton and neutron as identical weighing loops. Essentially the assumed weight of electrons has become 1.003268.

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 shell 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. The multiple angles of intersect suggests repeating atoms will appear diagonally.

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

10. The Periodic Table

To make progress in the study of matter is to find patterns in the elements.

Hydrogen is composed of occasional intersects/electrons by exiting 2 dimensional beams. Each intersect is considered a hydrogen atom and there is no defined exterior. Their size depends on the angle of beam intersections. They dominate the atmosphere in form with variations in size.

Helium introduces the third dimension. It is a complete atom formed by intersecting Hydrogen type atoms on the X plane with inclined hydrogen type atoms connecting at the same points as the X plane atom. A picture of the result is a football where the 4

sewing lines are the beams and the 2 ends are the connections. The ends are the 2 electrons and the surfaces are four of the hydrogen surface. The multiple of 4 matches the relation of the surface of a circle to that of the matching sphere. (note: it does take 4 hydrogen atoms to make one helium atom.)

Lithium - a possible form suggests using the coil view such that the bend causes adjacent beams to overlap creating 2 crossings. The third crossing is then separate beams crossing each intersection. This gives 3 crossings and 4 coil surfaces plus 3 other surfaces are possible caused by the other beam.

Neon - We can get 10 intersections by wrapping the helium football in 2 coils. That gives 2 original crossings plus 8 new crossings of the threads. The surface then divides into 12 parts and the 2 coils may divide into 4 parts each, giving 20 parts.

Carbon, nitrogen and oxygen - A possible approach is to use the football and wrap it in one coil. That gives 6 crossings for carbon. Then the surface becomes 8 parts and the coil breaks into 4 parts giving 12. For nitrogen, the same approach with one extra crossing either by the next coil touching one sew line before passing to the next football, or by adding a new line crossing one sew line. The same argument applies to oxygen but with 2 extra crossings.

Note that when the weight is 2x the crossing charge that the football and the number of coils is involved. For elements that increased weights by 1+, the structure is created by addition of an outside beam or replacement of an outside beam by more coil contact points. Elements included are B, C, Ne, Mg, Si. When the increase is more than 2, (usually 3) the cause is addition of another beam making multi crossings. Examples are Li, Na, Al, Cl, Ar.

This construct of matter is by the intersect of flowing beams. The beam content continues to flow while the contacts and associated surface features remain in place. The continuous flow distinguishes this from knot theory constructs of matter. Since we are building matter by crossing radiation beams we must realize that we can always disassemble elements yielding a form of nuclear energy - a type of fission.

References

- [1] Charles Donald Briddell, "The Neutron: Modeled as Field-structure", *Proceedings of the NPA* 8: 521-529 (2011).
- [2] Paul Schroeder, **The Universe is Otherwise** (Booksurge/Createa-space, 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>.