On Light within the Field of Universal Matter

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1 Preface

Light holds a substantial place in the hearts and minds of people. Its importance cannot be underestimated in many scientific areas, not the least of which is physics. It is central to Albert Einstein's theories of relativity and he considered the speed of light in vacuum to be constant.

The exact nature of light is well studied but still, in many ways, remains a mystery. It is said to have zero mass but it is affected by gravity and can affect some objects. Held in electromagnetic waves of energy, we can find insight in "The Natural Philosophy of Universal Matter", herein the Philosophy, and "On Particle Movement within the Field of Universal Matter", herein Movement.

2 Summary

In the Philosophy, the final step in making an atom of hydrogen was showing how a complimentary particle (herein an electron) could become entwined in the conductive flow of an effective, triple-prime composite particle[1]. The mechanics of quantitative joining in the effective, triple-prime composite particle (herein the proton) establishes the electron's place and path in the atom of hydrogen. It is that same type of joining behavior that will bring other complementary particles (CmP) into the conductive mix and the ever-moving electron that will eject these CmPs outwards as light.

3 Review of the Philosophy

In the Philosophy, the proton and the electron are rotating in the same direction, and so begins as a quantitative join. The proton's conducted shell is quick to over-flow electron but the conductive flow of the electron plays a significant role in the outcome of the collision. Contacting the electron on one of its leading flow-edges, the over-flow of the proton's shell engulfs the electron. The flow pattern of the electron may align with the flow of the proton and the electron begins to conduct the proton's particle flow internally as part of its own conducted particle matter. The electron now rides in the proton's flow pattern and resists the quantitative pull the proton exerts on it.

The quantitative action exerts an inward pressure on the electron, pulling it towards the proton. At a critical point proton's conducted shell cannot hold on to the electron and it escapes the pull springing outwards. The conductive flow 'track' of the proton is able to hold on to the electron and it is held in the proton's conductive flow. Given that the proton has developed a complete flow pattern around itself, the electron will track on the flow and remain an orbital around the proton.

The conductive flow pattern of the proton manages the electron. However, the proton's process and efforts to quantitatively join with the electron, remain active. The proton continues its quantitative join efforts, ever trying to pull the electron into itself. The proton ever fails in this endeavor and electron ever succeeds to spring back along the track of the proton's conductive flow particles. The actions of the proton are persistent and unresolvable.

The electron, ever stuck in its track around the flow of the proton, forms a persistent and stable atomic particle: hydrogen. The proton has two effective prime particles on each end of an ineffective prime particle[2].

[1] See the Philosophy for details about triple-primes.

[2] Note: As discussed in the Philosophy, its processes also forms another type of particle to the EIE proton. It is an IEI triple prime particle and is called a neutron. Neutrons are critical when building atoms larger than hydrogen. Please refer to the Structure of Elements worksheet for details on their part in building other elements.

4 Continued Joining Actions

The addition of an electron to the proton marks the beginning of the atom's ability to emit electromagnetic radiation. The reason for this is that the proton does not stop trying to quantitatively join with other, neighboring CmPs. If smaller particles are pulled into the conductive shell of the proton, the electron will soon sweep around the shell. Then the energy of releasing the quantitative join and the energy of the relocating electron contribute to spring outward and push the CmPs out and away from the proton.

This energetic action is similar to taking one end of rope in hand, with the rest of the rope laid out on the ground in front of you, and quickly and forcibly raising your hand (and arm) upwards. This action creates a wave in the rope that flows outwards along its length. The proton uses this similar wave motion and ejects the embedded CmP outwards and away from the atom.

5 The Spring

The CmPs ("CmP" in the following Figures), are located near the electron. As the proton releases its grip on the electron, the conducted flow springs out and away from the proton and the CmPs are emitted as radiation. Note that the shaded layers contained in the illustrations of Figure 1 are detailed in Movement.

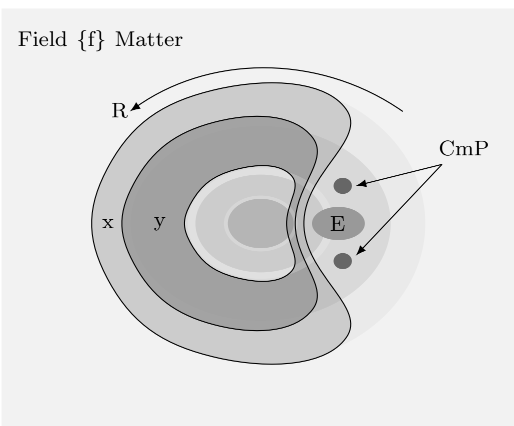


Figure 1a: Spring Action Ready

The electron, labeled 'E', is drawn inwards towards the core of the proton along with the outer layers of energetic conducted matter[3]. The compressed layers, labeled 'x' and 'y', build up potential energy as they are pulled inwards due to the quantitative join efforts of the proton. All of the conducted layers rotate in direction 'R'. CmPs are illustrated on either side of the electron and are similar to, but smaller than, the electron.

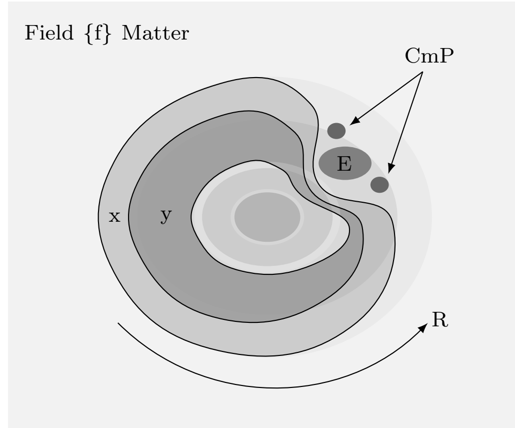


Figure 1b: Spring Executing

If the proton fails in its efforts to quantitatively join with the electron, and the electron is properly embedded in its conducted flow, the compressed layers of conducted potential energy are released and spring outwards. Both sides of the compressed indentation serves as waves carrying the electron and the CmPs with them.

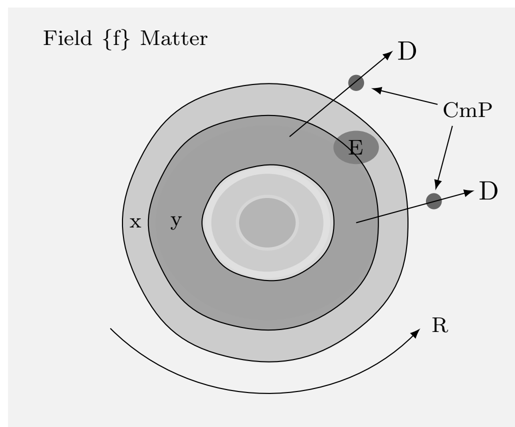


Figure 1c: Light Emitted

As the spring action completes its cycle, the electron settles back into its regular position near the edge of the energetic conducted flow. The CmPs, ejected outwards in directions 'D', are the result of the springing wave motion described above. The springing wave imparts energy to the CmPs, taking the forms of energy in the velocity of and rotations to the CmPs.

6 Energy

As described in section 5, our particle of light is not yet fully made: An expression of energy on the particle, and on the field {f}, is needed to complete the process.

[3]See Movement for insight into the triple prime's conducted matter layers

The CmP, our particle of light, is now in motion outwards, as shown in Figure 2, in direction 'D' along the 'z' axis. The CmP is represented as two ellipsoid spheres[4], comprised of shaded frames. The rotations of the ejected particle is:

- End-over-end rotation on the y-axis. The emitter end is noted with a red dot; and
- Around-and-around rotation on the x-axis. The emitter end is noted with blue dot.

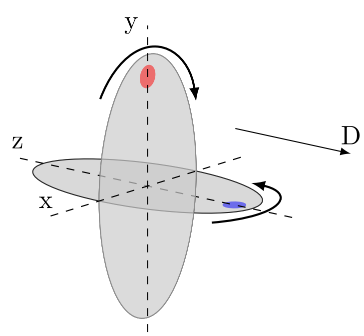


Figure 2: Complementary Particle Rotations

Locally, that is in the immediate area of the atom, all ejected particles of radiation are successful. But, non-locally, this is not the case: Ejected particles may, or may not, continue to radiate as light as distance from the atom increases. Success for non-local radiation is determined by the amount of energy imparted to the particle when it was ejected.

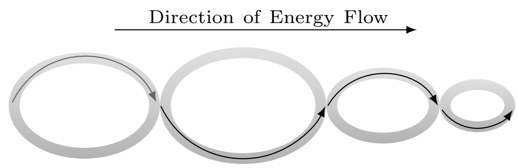
6.1 Energy Propagation

As noted in Movement, energy moves through the field {f} as a wave of rotations. The wave might include a particle embedded in one of the rotations and such is the case for light. The springing wave that ejected the particles of light away from the atom is very energetic due to the quantitative join action's very strong pull on the electron. That pull is released and imparts energy to the electron and the ejected particles. For the ejected CmP, that energy is equally applied to all three axes of motion. Let's consider this application of energy in terms of the particle and the field {f}.

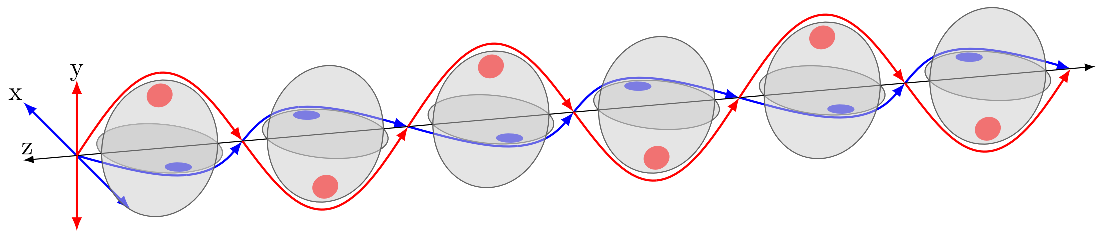
6.2 Movement Along Axes

For the moment, let's consider that energy propels the particle along the z-axis in the direction of movement 'D', as noted in Figure 3a, and spins-up rotations of energy in advance of the particle. The rotations of energy in the illustration are arbitrary: In general the number of energy rotations is proportional to the amount of energy transferred to the particle as it was ejected from the atom.

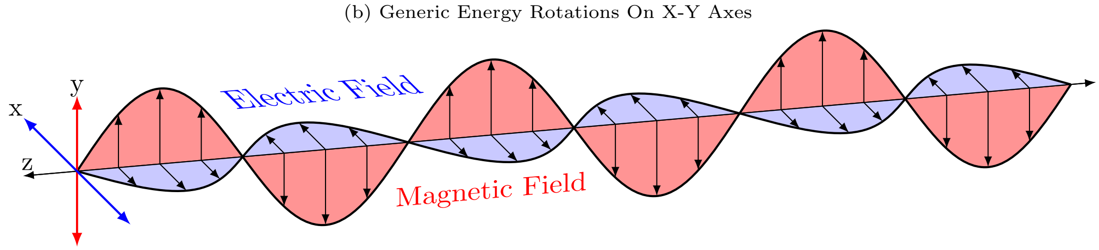
[4] See the Philosophy, in the section regarding Complementary Particles for details



(a) Generic Energy Rotations (in 2-Dimensions)



(b) Generic Energy Rotations On X-Y Axes



(c) Classic EM Wave

Figure 3: Electromagnetic Waves

Let's first translate the illustration in Figure 3a to Figure 3b. This is accomplished by designating the rotations of Figure 3a to the red-dot, y-axis rotation of Figure 2. The y-axis rotations are shown as a series of frames with the first frame noting the emitter end of the CmP, with a red dot, on the positive-side (sine) of the rotation. The second rotation-frame shows the emitter end of the CmP on the negative-side (cosine) of the rotation. The illustration contains six rotation-frames with each complete cycle needing two frames to complete the sine/cosine wave segment.

The second series, shown in Figure 2 but missing from Figure 3a, are illustrated as rotations with blue highlights on the x-axis of Figure 3b. As with the y-axis, each emitter/receiver rotation frame-set is shown as an ellipse with the emitter side notated with blue dot.

6.3 Axes Energy Rotations

We now have the particle of light moving along the z-axis as a series of rotations on the x- and y-axes. We must carefully note that the series shown in Figure 3b is a composition of frames superimposed over itself, showing a prolonged movement of light. However, at any such moment in 'time', the series shown in Figure 3a moving in direction 'D' along the z-axis, with rotations presumed to be on the y-axis, and with added rotations for the x-axis, is most correct.

Let's clarify the movement and energy expressions of the CmP. While the particle is moving along the z-axis, energy is expressed as rotations on the x- and y-axes. The total energy available to the CmP by the spring action of the parenting atom is a ledger of credit. The CmP debits the ledger to spin-up particles of {f} as rotations on the x- and y-axes. Still, the successful particle of light must reach a critical threshold in order to span the vast stretches of spacetime.

The CmP spins-up rotations of {f} matter using quantitative joins and, in so doing, increases its mass. At some such point the mass of the rotations might exceed the mass of the of the CmP. In this case, the energy-rotations will reverse roles with the CmP and quantitatively join the CmP to the rotations.

In the Philosophy we see how a CmP gets fixed into the conducted flow of effective triple-prime (a proton) and takes the role of an electron. Here the same process takes place but now the role of the proton is played by the two energy-rotations on the x- and y-axes. In the role of a pseudo electron, the CmP conducts the rotating {f} matter via its receiver to emitter channels. As it absorbs the CmP into its energy-rotations, any excess energy flashes off into the field {f}. Keep in mind that there are no guarantees: The energy given to the CmP from the parenting atom may be insufficient to see its energy-rotations exceed the mass of the CmP. In this case the particle of light will gradually succumb to resistance and get absorbed back into the field {f}.

The particle of light is now well formed. The rotations of energy, with its integrated CmP, become part of spacetime. The rotating matter does not move through space, rather it only acts as a conductor allowing the energy to travel through space. Thus, the CmP is integrated with the energy. Any sub-particles of {f} created by the process or by its movement in the field remain within the {f} matter of the moment. The particle of light, moving without its created sub-particles, becomes timeless.