The Hypothesis of Universal Matter

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1 Preface

When we consider the many things of the universe, we find they are all comprised of some sort of matter: some of it is fairly well understood but some remain a mystery. From large sized things, such as galaxies, stars, and black holes, to medium sized things, such as planets, moons, and comets, and then to small sized things, such as atoms, quarks, and quantum matter. However some things, such as dark energy and dark matter remain a mystery.

Large objects are composed of smaller sets of matter. As we look more deeply into things, we find that galaxies are comprised of stars, stars may have planets, our planet has people, people have organs, organs are made of cells, cells are made of molecules, molecules are made of elements, and elements are made of smaller atomic particles. Each level of decomposition flows from larger to smaller levels and each resulting level seems to be made up of smaller discreet pieces. Imagine that we have some 'super-knife' that is able to separate larger things into their ever smaller, discreet smaller objects. Decomposition, then, is the methodical identification of, dissection, and separation of these discrete sets of matter.

Decomposition continues until all groups, at some point, are reduced to single, discrete particles. These discrete particles are not made up of smaller sets of matter and so ends the process of decomposition. They are Universal Matter and the set of all such particles is notated as {f}.

All members of the set {f} constitute a field of such matter. This field is the whole Universe and all visible, known, or unknown things of this Universe are derived from compositions of {f}.

2 Universal Matter, {f}, and Particle Collisions

Members of {f} are irregular in shape and size and are not evenly distributed within the field, that is the universe. Perturbations in the field and allows member particles of {f} to move and act independently of any or all other particles.

Any member particle of {f}, such as X, where X is in motion, may collide with another member particle of {f}, such as Y. The collision produces complex and simple results.

The complex result has two possible outcomes:

- One is that, due to the irregular shapes of the particles X and Y, the two particles may collide with each other and remain together, forming a single composite particle, made up of two (or more members) of {f}. Also, the collision of X with Y may introduce rotation in the resulting composite particle; or
- The two particles X and Y may collide, separate, and so remain two discreet particles of {f}.

In either of these two outcomes, there is one additional, simple result of the collision:

- The collision may cause small pieces of either X and Y, or both, to break off from their parent particles. They become separate, individual pieces of X and/or Y. Such pieces may be labeled as 'sub-f' particles. They retain properties of their parents with energy transferred from the parent as a result of the collision.

  As newly formed sub-f particles of {f} are created they become member particle(s) in the set {f} and as such, fill-in the spaces in and around their parenting particles forming a localized influence on neighboring particles and other sub-f particles.

Particles of {f} collide with other particles and sub-f particles forming composite particles. The sole dimension of size allows collisions and possible joining of these particles resulting in new and/or larger composite particles. The collisions and joining of particles of {f}, sub-f particles, and/or composite particles imparts a second dimension of rotation to the composite particles due to kinetic energy transferred in the interaction.

3 Composite Particles

3.1 General

Composite particles accumulate in size and mass by collisions with other particle members of {f} and/or other composite particles. Sub-f particles accumulate within and around composite particle as they grow.

For the sake of clarity and discussion, we will set out three attained levels of composite particle (CP) growth:

- **Level I.** (CPL1) This is the initial growth phase in building a CP (composite particle). Individual members of {f} physically join together increasing the forming particle's size.

- **Level 2.** (CPL2) Here CPL1 particles join together. The key to growth in this second level is the relative sizes and direction of rotation of the colliding CPL1 particles. We see two types of growth in CPL2 interactions: series and quantitative.
- **Level 3.** (CPL3) Finally, we see the joining of the two types of the CPL2 particles forming CPL3 particles that combine both series and quantitative into a hybrid particle.

3.2 Level 1 Accumulation

This level sees existing particles of {f} joining with other {f} particles (includes sub-f particles) increasing the size and mass of the forming composite particle. After reaching sufficient size and mass the accumulating group of particles attain CPL1 status and the focus of {f} particle accumulation shifts from gathering other particles of {f} to collisions with other CPL1 particles and so begin building CPL2 particles.

3.3 Level 2 Beginning Development

As a CPL2 particle begins forming, two types of particle growth emerge: Series and Quantitative. Given two CPL1 particles, say X and Y, such that X collides with Y, two relationships determine the join:

- **Size**
  - Series joins find that X and Y are evenly sized particles.
  - Quantitative joins find that X is substantially larger than Y.
- **Direction of Rotation**
  - Series joins find X and Y rotating in the opposite direction.
  - Quantitative joins find X and Y rotating in the same direction.

3.3.1 Series Joins

Two CPL1 particles with opposing directions of rotation may begin forming a CPL2 particle. Their relative direction of rotation opposes each other but, at the point of contact, both particles are rotating in the same direction. Series join results are most effective when the size of each composite particle is generally equal. The compatible direction of rotation, at the point of contact, allows X to find compatible receptor geography in Y and so form a persistent series join relationship.

Unlike the fixed contact joins of CPL1 particles, series joins remain topical. If X collides with Y and X is rotating clockwise, then Y rotates in a counter-clockwise direction. If a new CPL1 particle, say Z, collides with Y, then it must rotate clockwise. The clockwise, counter-clockwise pattern continues uninterrupted throughout the CPL2 series build.

3.3.2 Quantitative Joins

Two CPL1 particles with the same direction of rotation may begin forming a CPL2 quantitative particle. Though their relative direction of rotation is the same, at the point of contact they rotate in opposite directions. The two contacting surfaces begin to pile constituent CPL1 particle members up against the push of the other particle.

Given that the two particles are unequal in size, the larger particle will pile up constituent particle members such that they over-flow the smaller particle. By over-flowing the smaller particle the larger particle assimilates it and they becomes a single, quantitative CPL2 particle.

3.3.3 Failed Joins

CPL2 particle joining is not always successful. The interacting particles may separate and pull away from each other. Or they continue in their endeavors but are ineffectively joined and future interactions with other particles exploit the weakness and break them apart.

In either form of join, the collisions may break away sub-f particle bits and/or smaller sub-f particle groups. The broken sub-f particles may get assimilated in quantitative joins. These sub-f particles continue to accumulate in and around the forming CPL2 particles.

There may also be an exchange of constituent particles that move from one forming CPL2 particle to another.

4 Level 2 Extended Growth

4.1 Series Particles

Additional series particle joins may occur when other CPL1 particles of opposing direction of rotation come into contact with an existing, forming CPL2 series particle. The direction of rotation of the newly interacting CPL1 particle, say X, must oppose the direction of rotation for series member Y where Y is already in series CPL2 particle.

Forming series CPL2 particles often add new CPL2 particles along its x-axis, but growth may also occur at an intersecting z-axis of any existing x-axis member. Any member or members of an existing CPL2 series particle may join with any member or members of itself or another series CPL2 particle. The only requirement is that the point of contact, or re-contact must be fully compatible with all series particle rotation relationships.

Some of the small surface particle members (especially newest members of the CPL1 particle) of a given series join, say of X and Y, where X has collided with Y, may be lightly attached to its parent, either of X or Y. Then, as X contacts Y, some of these surface members may be transferred to the other particle. This transfer of surface members may continue throughout the length of its series particle build, along either x- or z-axis, going back and forth in figure-eight loops.

In this way the series join may contain more constituent particles than was solely part of X, Y, ... n at the time of joining.

Extensive CPL2 series particle growth along many points of the x and z axes allow for viewing the matrix as a surface. With additional series joining additional surfaces may be created as new surface layers within the series join. Layer surfaces may result when a part of an existing series join comes in contact with other areas of itself and successfully completes the series join process, or when the edge or surface of one series join comes into contact with another series join and successfully completes the series join process.

Gaps may form between surface layers. The gaps may be wide, skipping many of the series members to then attach to another member. They may also be narrow, perhaps skipping a single member to then join with the next member.

New CPL1 particles may come into proximity with the surface layered edges of a CPL2 series join, or figure-eight looping particles may get influenced by nearby surface particle members. The particles may approach may be either in the same or opposing direction of rotation of a nearby CPL2 series join particles and so be involved as either a series or quantitative join. The result of this interaction differs from regular CPL2 joins due to the difference in size between the approaching CPL1 particle and the established CPL2 series particle.

The CPL1 particle, say particle X, may approach a CPL2 series particle at the edge of one of its surface layers, colliding with an existing member of the CPL2, say particle Y.

Y will attempt to join with X based on their directions of rotation. The join may be successful, but of interest here are failed joins. Given a collision of X with Y, X may rebound inward between the surface layers of the CPL2 particle.

X will probably not rebound parallel to any neighboring surface layers. Rather it is likely that X will collide with another member of the CPL2 series particle. And once again X may rebound further into the series particle.

In this way X may be “conducted” onward through the CPL2 surface layers and exit out somewhere in a gap in or between the series join surface layers. The conducted path may be thought of a channel that effectively conducts matter through the CPL2 layers. And so CPL2 series particles introduce a third dimension in the growth of CPL2 particles, that of conductance.

4.2 Quantitative Growth

CPL2 quantitative particles continue to gather CPL1 into themselves or be gathered into other forming CPL2 quantitative particles. Either behavior increases the size and mass of CPL2 quantitative particles.

The growing CPL2 quantitative particle assimilates smaller particles by over-flowing constituent surface member particles over them. After the quantitative join, the larger, united particle continues to rotate. Given a number of assimilated (smaller) particles, the over-flow particles tend to remain near, but detached from the growing particle. In this way the CPL2 particle accumulates a cloud of particles generally moving in the direction of rotation.

4.3 Level 3 Hybrid Growth

The gathering behavior of quantitative join particles is not limited to interacting with other quantitative join particles, it also allows for quantitative gathering of series CPL2 particles. The process starts as described for regular quantitative joins, with both particles rotating in the same direction and, at the point of contact, the opposing directions of rotation gathers surface particles of each one against each other.

At the point of contact, the joining properties of the series CPL2 particle are different than those of a regular composite particle. The difference is due to the matrix or 'fabric' like surfaces of the series CPL2 particle. The spread-out-matrix properties of the series join particle presents as a larger size in the join, but, in this case, size is indicative of volume not mass. As the larger quantitative particle overflows the series particle, the series particle wraps and folds into the larger particle thus adding some of its conductive behaviors to the larger quantitative particle.

In this way quantitative CPL2 particles tend to evolve into hybrid CPL3 particles, combining the properties of the larger mass of a quantitative particle and the conductance of the series particle. As CPL3 particles interact with other CPL2 particles, the dimension of conductance becomes more pronounced, gaining equal footing with the existing properties of rotation and size.

5 Prime Particles

As additional CPL2 series join particles are gathered into CPL3 particles, conductive patterns emerge. The patterns are the result of conducted matter's ability to flow into and out of channels that may be found in the forming particle. Maturity of these channel patterns, along with sufficient attained size and mass, elevates the CPL3 particle to Prime status. Channel patterns for the entire particle may be generalized into two types: Effective and Ineffective.

- **Effective** Here many of the channels can conduct particles into and out of the Prime particle.

- **Ineffective** Here a few channels can successfully conduct matter through the Prime but so most cannot do so.

Conductive flows, whether for effective or ineffective primes, can flow internally, into, or out of prime particles. Areas of in-flow are receivers and areas of out-flow are emitters. For effective primes conductive particles are emitted from an emitter channel arching backwards in the opposite direction of the prime particle's direction of rotation. As these conducted particles flow in the opposite direction of rotation they may be gathered towards receiver channels opposite the emitter. Thus effective conductive prime particles have strong emitter-receiver channels.

6 Paired Prime Particles

An actively conducting effective prime particle (Ep) may interact and join with an ineffective conductive prime particle (Ip (that is eye-p)). Each of the two primes rotate in the same direction and so the process begins as a quantitative join and the two particles begin to pile up constituent sub-particles up against each direction of rotation. But the new dimension of conductance modifies the regular process of a quantitative join.

Two pools of constituent particle quickly develop: One is from the scraped particles of the quantitative join; and the other is from the conducted particles of either particle. Either of the prime particles can exploit emitter-receiver channels in the other particle. The Ep, however, is much better prepared to exploit channel flows into or out of the particle Ip. The inverse is a much harder: The Ip has few full-flow channels and only if they are conveniently placed can the Ep find purchase for its emitter flow.

If the Ip has enough receiver channels and the Ep is in the right position to emit particles into the Ip's receiver channels the join might be successful. The Ep emits particles into the Ip's receiver channels and the Ip returns the same particles back into the Ep's receiver channels forming loops, or circuits, of conducted particles between the particles Ep and Ip. The two joined particles now rotate as a single paired prime particle[1].

Success is not guaranteed. It is often the case that the effective prime cannot find enough receiver channels in the ineffective prime: Indeed there may be none. Without enough purchase and/or not enough in a timely manner, the two primes join effort will fail and they will go on their separate ways. The may be some transfer of conducted particles, there may be various groups of matter broken off or lost in the collision, and, as always, the production of sub-f particles.

[1]Note: The conducted channels of the successful join have a major effect on the combined paired prime. This will be discussed at greater length in the section 7.2.

7 Triple Prime Particle Joining

7.1 Join Types

Triple primes join in one of two ways:

- **Active:** This is where two effective primes join to a common (middle) ineffective prime.
- **Passive:** Here two ineffective primes join to a common (middle) effective prime.

Paired primes are building blocks that must join to a third prime particle for successful, continued development. The new, third prime particle will join with either one of the paired prime particles but not both. The join process begins in the same manner, as a quantitative join. The Ep or the Ip of the paired prime can attempt to join with either an effective (Ep) or ineffective (Ip) third prime particle. Given the paired prime notated as Ep-Ip, there are four possible joins for the third particle:

- Ep of Ep-Ip attempts to join with an Ep: Fail. When the Ep collides with an Ep, the strong conducted flows oppose each other and they rebuff each other.
- Ep of Ep-Ip attempts to join with an Ip: Success. The collision of an Ip with the Ep has much more potential. Given a successful join, the resulting triple prime is effective joined to ineffective joined to effective, or Ep - Ip - Ep (EIE).
- Ip of Ep-Ip attempts to join with an Ip: Fail. When an Ip collides with the Ip, the weak or non-existent conducted flows will not find purchase and they will rebuff each other.
- Ip of Ep-Ip attempts to join with an Ep: Success. There is much more potential when an Ip collides with Ep. Given a successful join, the resulting triple prime is ineffective joined to effective joined to ineffective, or Ip - Ep - Ip (IEI).

For an EIE triple prime the main flow of each effective prime is on the leading rotation edge of the now triple prime. Each flow is joined to the ineffective particle. Some of this flow on these leading edges squeeze up past the center ineffective prime and serves to build-up the leeward trailing sides of the effective primes. Though the flow has some areas of strength and weakness, the flow of each effective conductive flows combined with the over-flow of the ineffective prime forms a shell of conducted particles around the triple prime.

7.2 The Conductive Join

The conductive joins between any combination of an Ep or Ip, whether as paired or triple primes, are the substantial heart of either prime particle. The reason is that these joins suffer tremendous stress while keeping the paired or triple prime particles attached to each other. The stress might be likened to springs constantly being pushed (compression), pulled (extension), and twisted (torsion). As the spring force is applied in some direction it may then released in the other direction. The forced load amounts to stored kinetic energy and adds or subtracts mass to the paired or triple prime.

The conductive joins also adds an increased amount of conducted matter to the joins. This is due to the stretching of the conducted particle: While the smaller various particles of Universal Matter assemble, there is no single particle, or sub-groups of particles, that are directly connected to all other constituent particles in the accumulating greater particle. Particles assembled via the processes described in this hypothesis are loosely connected, that is some constituent particles are connected to some other creating a relationship of these particles to form a coherent greater particle. The stress of conductive joins exploit this relationship.

As the conductive join is stressed by the greater joined particles, the conducted particles are stretched-out lengthwise and thinned-down along this length. This allows for additional conducted particles to flow into the conducted flow channel and, in the same manner, be stretched and thinned. This adds to the strength of the join and increases the amount of stored kinetic energy.

8 Triple Particle Joining with a Small Effective Prime

Both strong and weak triple primes may continue trying to join with new effective or ineffective primes, but nature seems to have little interest in them. The triples, it seems, rule. But a final join, one between an EIE triple and a small effective prime yields an amazing result.

Of particular interest is when a small effective prime, say sEp, contacts the flow shell of the of an EIE triple prime. EIE and sEp are rotating in the same direction, and so begins as a quantitative join. The EIE triple is quick to over-flow sEp but the conductive flow of sEp plays a significant role in the outcome of the collision.

Contacting the smaller particle on one its leading flow-edges, the over-flow of the large triple's shell engulfs the sEp. But, on occasion, the effective flow pattern of sEp may align with the flow direction pattern of the EIE tripe prime and the sEp begins to conduct the particle flow as part of its own conducted particle matter. The sEp now rides on the larger flow pattern and can now resist the quantitative pull that the EIE triple particle exerts on the sEp. The quantitative action exerts a pull pressure on the sEp, which, at a critical point, escapes the pull: Pushing the sEp in the direction of the larger flow pattern. But the conductive flow 'track' of the EIE tripe particle is able to hold the sEp as it rides on the track. Given that the EIE triple has developed a full-flow pattern all the way around itself, the sEp will track on the flow and around the EIE tripe particle.

The flow pattern of the EIE triple manages the sEp. However, the EIE's process and effort to quantitatively join with the sEp remains active. The EIE triple continues its quantitative join process, ever trying to pull the sEp into itself. The EIE ever fails and succeeds only in springing the sEp along the track of its conductive flow particles. The actions of the EIE are persistent and unresolvable. The conductive property of the sEp remains riding on the track-flow of the EIE triple and the EIE triple particle cannot stop trying to quantitatively pull the sEp into itself.

The sEp, ever stuck in its track around the flow of the EIE triple, forms a persistent and stable atomic particle: Hydrogen. The EIE triple particle with its two effective prime particles on each end of the ineffective prime particle, form the proton nucleus[2]. The small, effective particle, ever on its rollercoaster ride around the proton, is the electron.

[2]Note: The IEI triple prime particle forms a neutron. Please refer to the Structure of Elements worksheet for details on their part in building atoms.