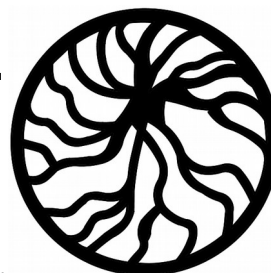


# On the Big Split of the Primal Cosmic Substance. Significant Refinement to the Fragmentation and Recombination Pathways.



Bruno R Galeffi

**Abstract:** The emergence of the observable cosmos and non-visible universe(s) from the self-division of a primal and self-existent Substance at high entropy is further developed. In this article, a significant improvement to the partition and recombination pathways driven by the ubiquitous golden ratio is presented. A surprising correlation to the DE, DM, and BM of the standard model for cosmology is found, although some of the vacuum components appear undifferentiated in this later model.

## 1. Introduction

The Big Split is a substitute for the Big Bang model of cosmology and its trail of outstanding and unresolved problems & mysteries [1-2]. The 2019 Nobel Prize in Physics, Jim Peebles, stated in his award presentation about the Big Bang theory: *"It's very unfortunate that one thinks of the beginning whereas in fact, we have no good theory of such a thing as the beginning"* [3].

The Big Split acknowledges the self-division of a primal cosmic substance, namely a self-existing cosmic mind, or cosmic consciousness, as well as an expansion of the transparent universe through propagation of fluids within other fluids [4-5]. The multi-step division and recombination pathways of an initial substance at maximum entropy and zero energy resolves critical issues associated with the Big Bang theory such as the mathematical singularity related to the origin of the universe, the violation of the first and second laws of thermodynamics, the expansion of space within itself, the horizon and the homogeneity issues.

Coincidentally, this model somewhat relates to George Lemaître outstanding intuition quoted in his 1931 Nature paper, where he writes about the division of an original quantum: *"If the world has begun with a single quantum, the notions of space and time would altogether fail to have any meaning at the beginning; they would only begin to have a sensible meaning when the original quantum had been divided into a sufficient number of quanta..."* [6]

## 2. Asymmetric self-division: a widespread process across the universe

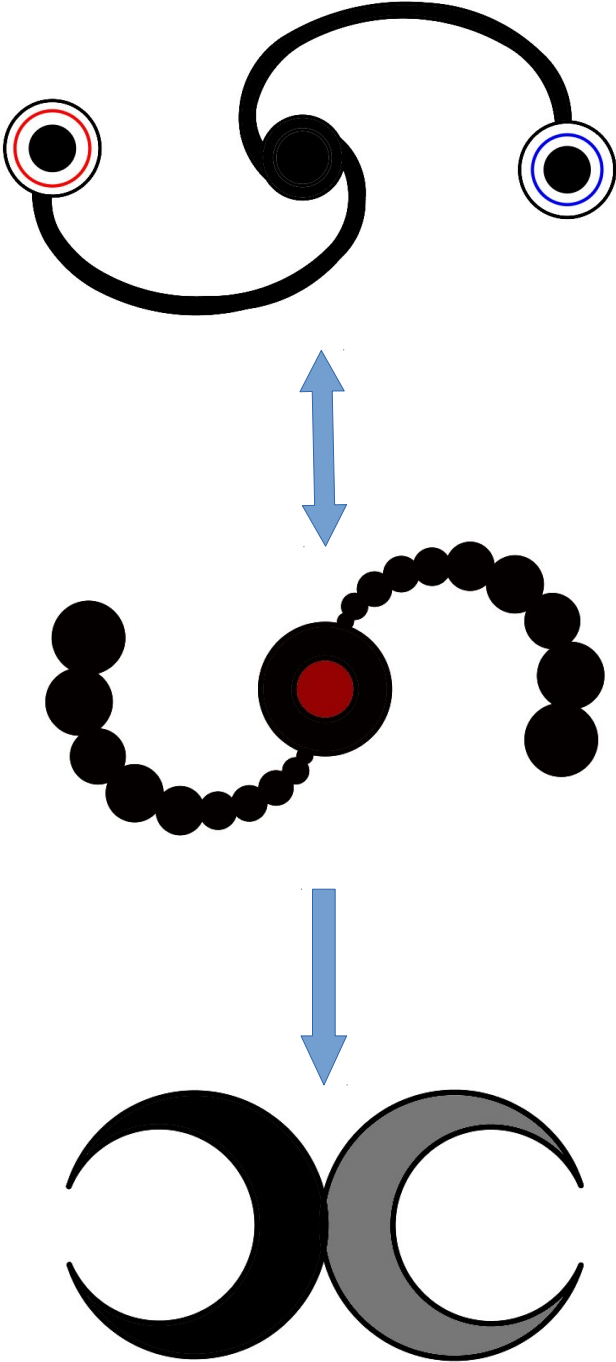
The mathematical singularity associated with the Big Bang theory still violates the first law of thermodynamics, despite numerous attempts such as the classical bounce theory [7] to circumvent this issue. In the Big Split model, the singularity vanishes due to the existence of an initial Substance pervading the whole space, should we say making up the whole space. This Substance, which is the precursor of both the observable cosmos and other invisible universe(s), provides via the initial asymmetric self-division, the potential energy required to satisfy the first law of thermodynamics.

As a matter of fact, this initial and asymmetric self-division of a Substance at maximum entropy ought to be the first step to create potential energy in a universe initially at zero energy. Just as the separation of charges within an electrical battery creates potential electrical energy, which depletes when circuitry is closed, the Big Split creates two initial constituents with a tendency to reunite. This inclination to reunite will therefore drain out the potential energy created, although at a larger timescale (cosmic timescale). One ingredient drives down the universe creation pathway, the opposite ingredient successively and predominantly drives its disintegration. Therefore appearance is followed by disappearance, and reaction ensues action.

This mechanism also applies to the thinking process. As a matter of fact, a particular action is always preceded by a thought, and therefore every single thought is a creative force, therefore appearing as a dual phenomenon, a creative thought and a degenerative

thought. Fig.1, 2, 3 are various graphical representations of this initial asymmetric self-division step from a central unique cosmic Substance.

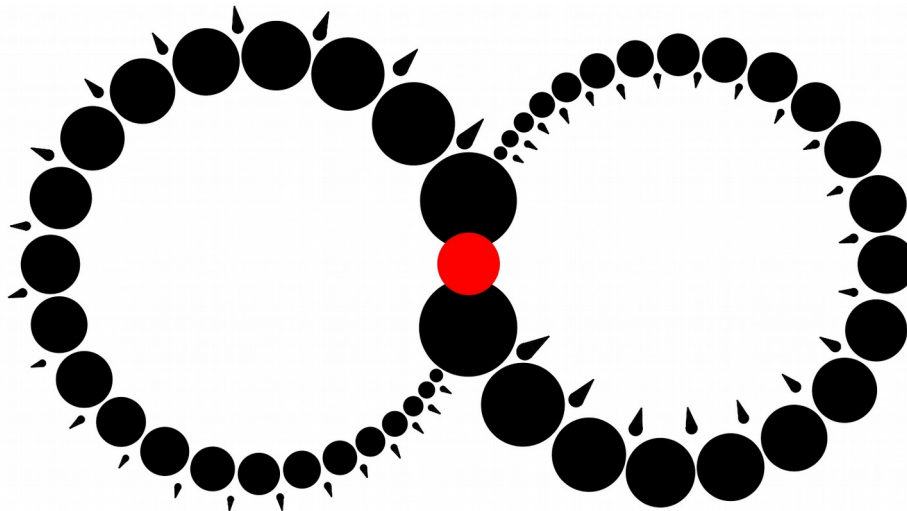
**Figure 1:** Depiction of the initial self-division. A simultaneous dual process leading to the emergence of energy from the creation of opposites, both a generative and a degenerative component. Action prompts reaction, and disintegration follows creation



**Figure 2:** The true meaning of the universal yin-yang symbol is the creation of energy and action through dual emergence of asymmetric off-springs, a dynamic concept that describes opposite but interconnected forces. One side drives the bringing into existence, and the other one drives the disappearance process, turning the overall energy back to zero.



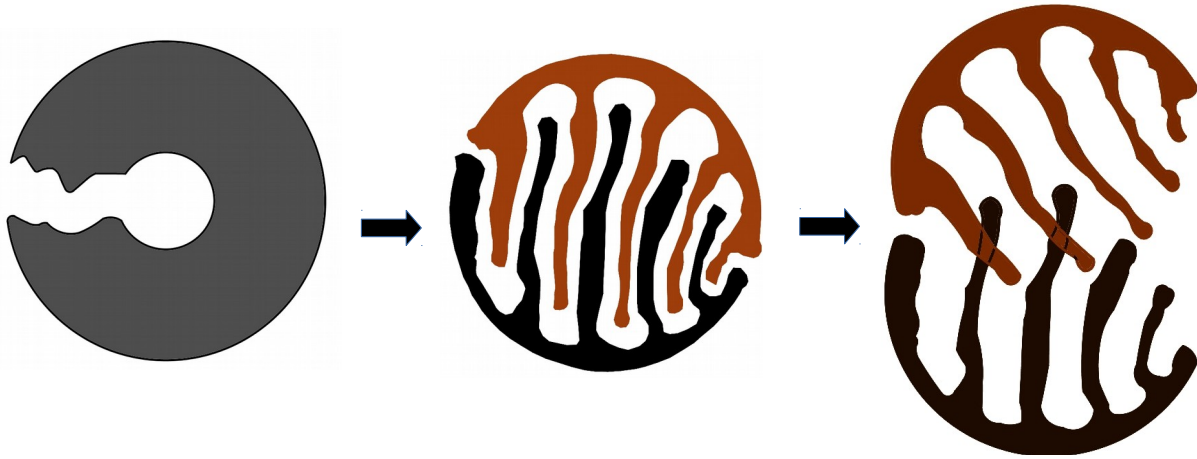
**Figure 3:** Another elegant depiction of the action-reaction process, creation and disintegration, appearance and disappearance which act in alternation.



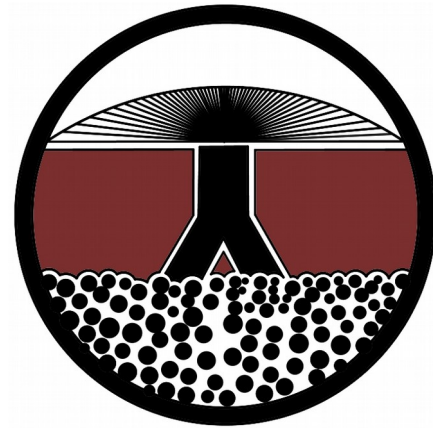
### 3. The Big Split of the primal cosmic Substance

The initial scission of the primal cosmic Substance constitutes the Big Split, which is the creation of energy from a preexisting cosmic mind initially at zero energy. This paramount step is believed to be simultaneous to the release of radiation energy, corresponding to the CMB we see today [4-5]. The exact percentage of the primal cosmic Substance undergoing this division process is not known, but believed to be low according to some ancient scriptures. Fig.4 is a sketch of the Big Split. Fig.5 is a graphical representation of the Big Split of the preexisting cosmic Substance, from which emerges the entire universe of shapes, forms, and life, with various levels of consciousness.

**Figure 4:** Graphical representation of the Big Split of the primal cosmic mind, the initial self-division of the preexisting cosmic Substance at maximum entropy and zero energy.



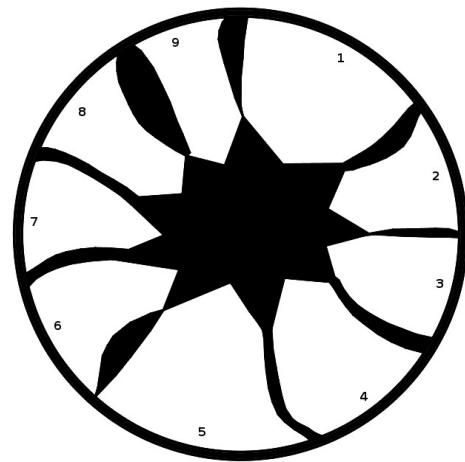
**Figure 5:** Graphical representation of the Big Split (initial self-division) of the primeval cosmic Substance, from which emerges the entire universe of living beings of diverse shapes and forms with various levels of consciousness (bottom part). Only the initial division is depicted on this drawing.



#### 4. The multi-step process of divisions and recombinations

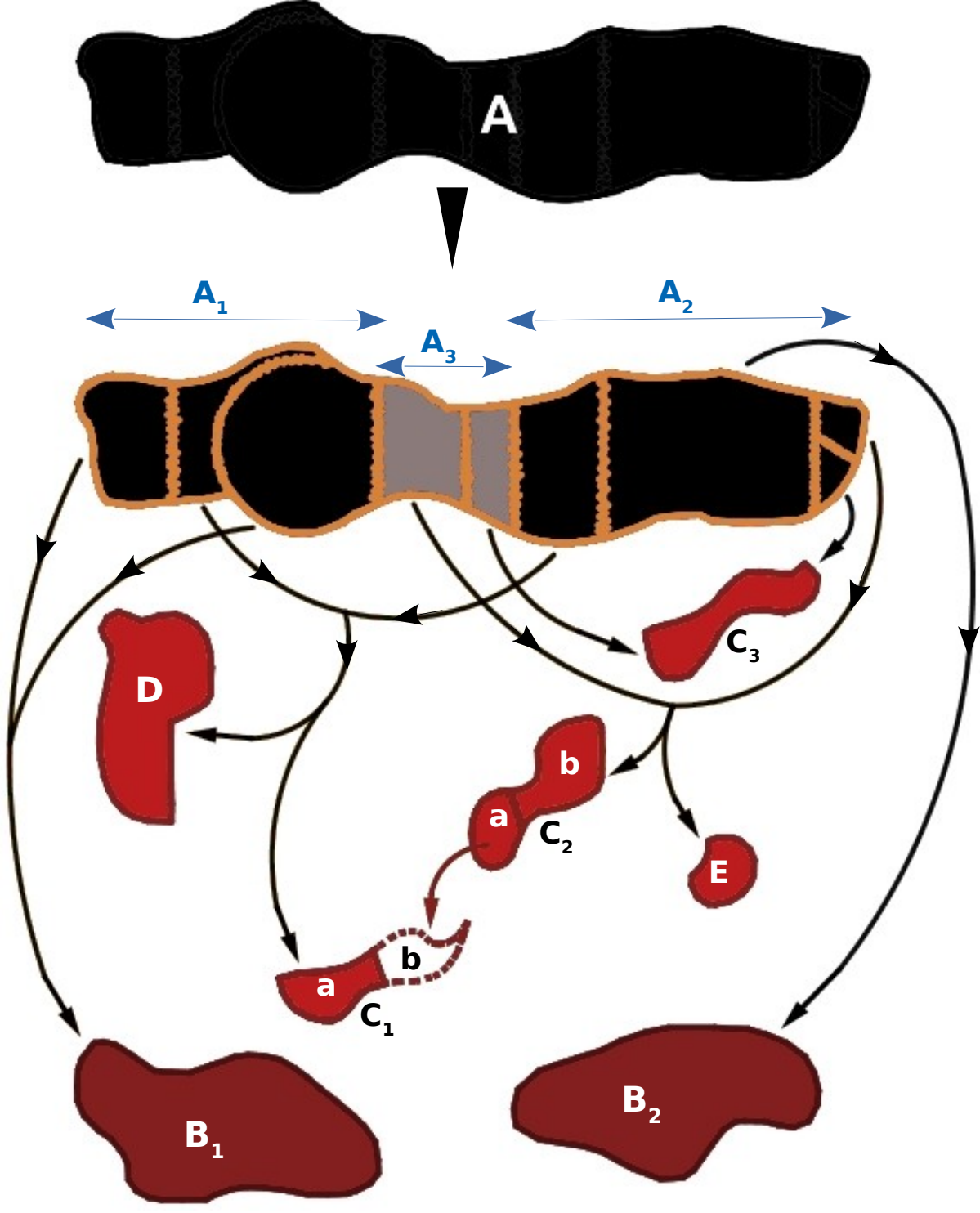
The initial self-division of the preexisting cosmic Substance, known as the Big Split, is followed by multiple subdivisions and recombination steps, leading to the multi-component vacuum.

It was found that the primal cosmic Substance undergoes a total of nine divisions as shown in Fig.6. The selective recombination of specific partitions of this multi-step division process led to the complex multi-component vacuum, bearing positive, negative, or neutral energy density. Graphical and dynamic representations of the multi-step division and recombination pathways are depicted successively in Fig. 7, 8, & 9.

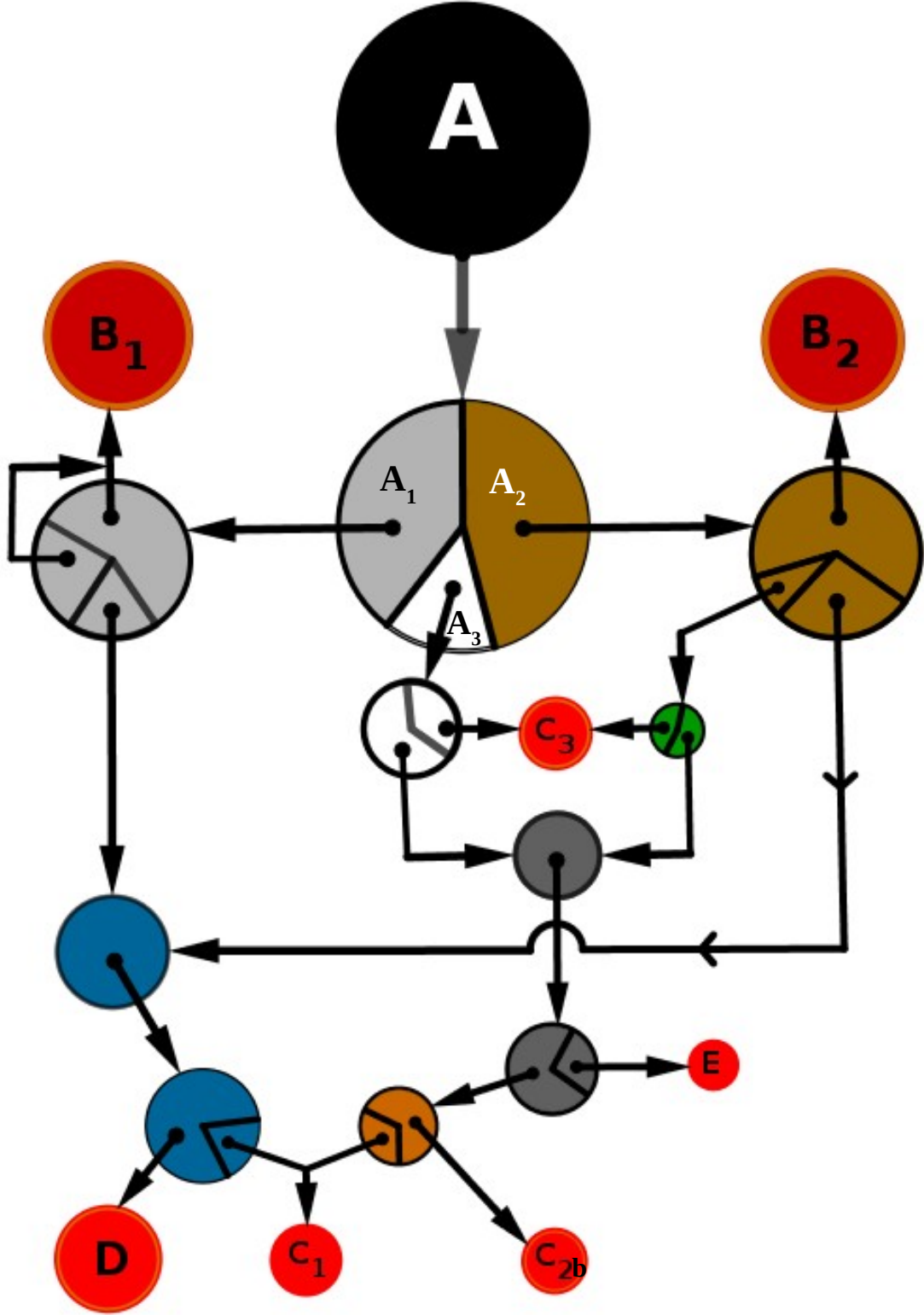


**Figure 6:** The primal cosmic Substance appears to have been partitioned into nine fractions from the primal cosmic Substance.

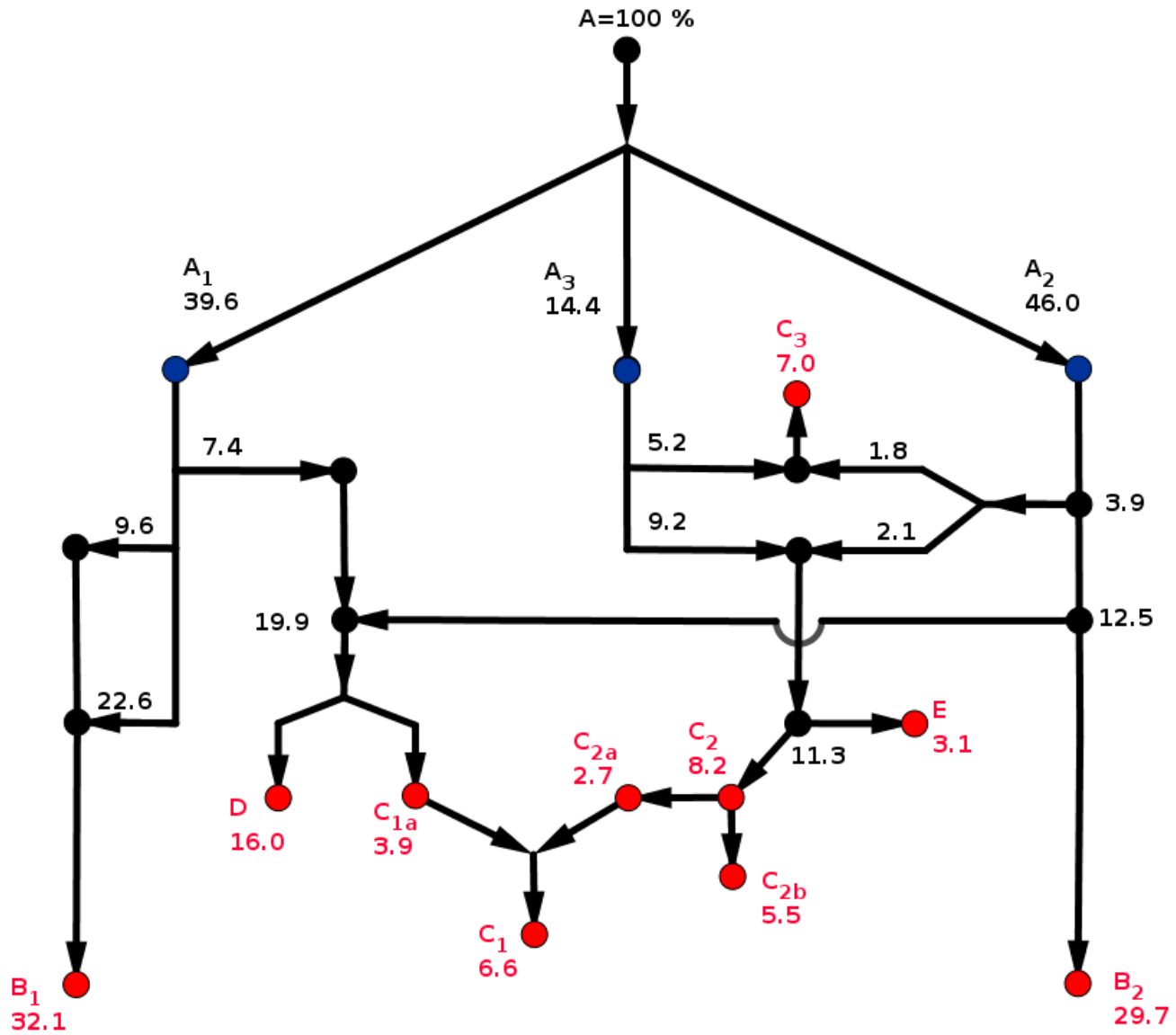
**Figure 7:** Dynamic representation of the division and recombination pathways giving rise to the vacuum multiple components (counted 5 or 7 depending on whether the residuals  $B_1$  and  $B_2$  are counted as ingredients or not). Component “E” appears to be the baryonic matter. Areas are direct expressions of individual percentages, the total initial Substance called A being set at 100%. The division chronology is presently unknown. However,  $A_1$  and  $A_3$  emerge as the result of the first initial self-division (Big Split).



**Figure 8:** A flow chart depicting the dynamic process associated with the multi-step division and recombination pathways of the preexisting cosmic Substance, leading to the complex vacuum components. Areas are directly proportional to percentages. Final vacuum components are in red circles.



**Figure 9:** Another flow chart depicting the dynamic process associated with the multi-step division and recombination pathways of the preexisting cosmic Substance leading to the complex vacuum components. Exact percentages are expressed with red numbers corresponding to final vacuum ingredients.



## 5- The ubiquitous golden ratio driving the division & recombination pathways

It was found a significant embroilment of the golden mean in the sequence of divisions et recombinations from the primal cosmic Substance. Below are the main equations found governing these pathways:

$$A = A_1 + A_2 + A_3 \quad (1)$$

$$B = B_1 + B_2 \quad (2)$$

$$C = C_{1a} + C_2 + C_3 = C_1 + C_{2b} + C_3 \quad (3)$$

$$C_1 = C_{1a} + C_{1b} \quad (4)$$

$$C_2 = C_{2a} + C_{2b} \quad (5)$$

$$T = C + D + E \quad (6)$$

$$\frac{A_2}{A_1} = \varphi^{\frac{1}{2\varphi}} \quad (7)$$

$$\frac{B_1}{B_2} = \varphi^{\frac{1}{6}} \quad (8)$$

$$\frac{B}{A} = \varphi^{-1} \quad (9)$$

$$\frac{T}{A} = \varphi^{-2} \quad (10)$$

$$\frac{B-T}{A} = \varphi^{-3} \quad (11)$$

$$\frac{C_{1a} + D}{B_1} = \varphi^{-1} \quad (12)$$

$$\frac{C_2 + C_3 + E}{B_2} = \varphi^{-1} \quad (13)$$

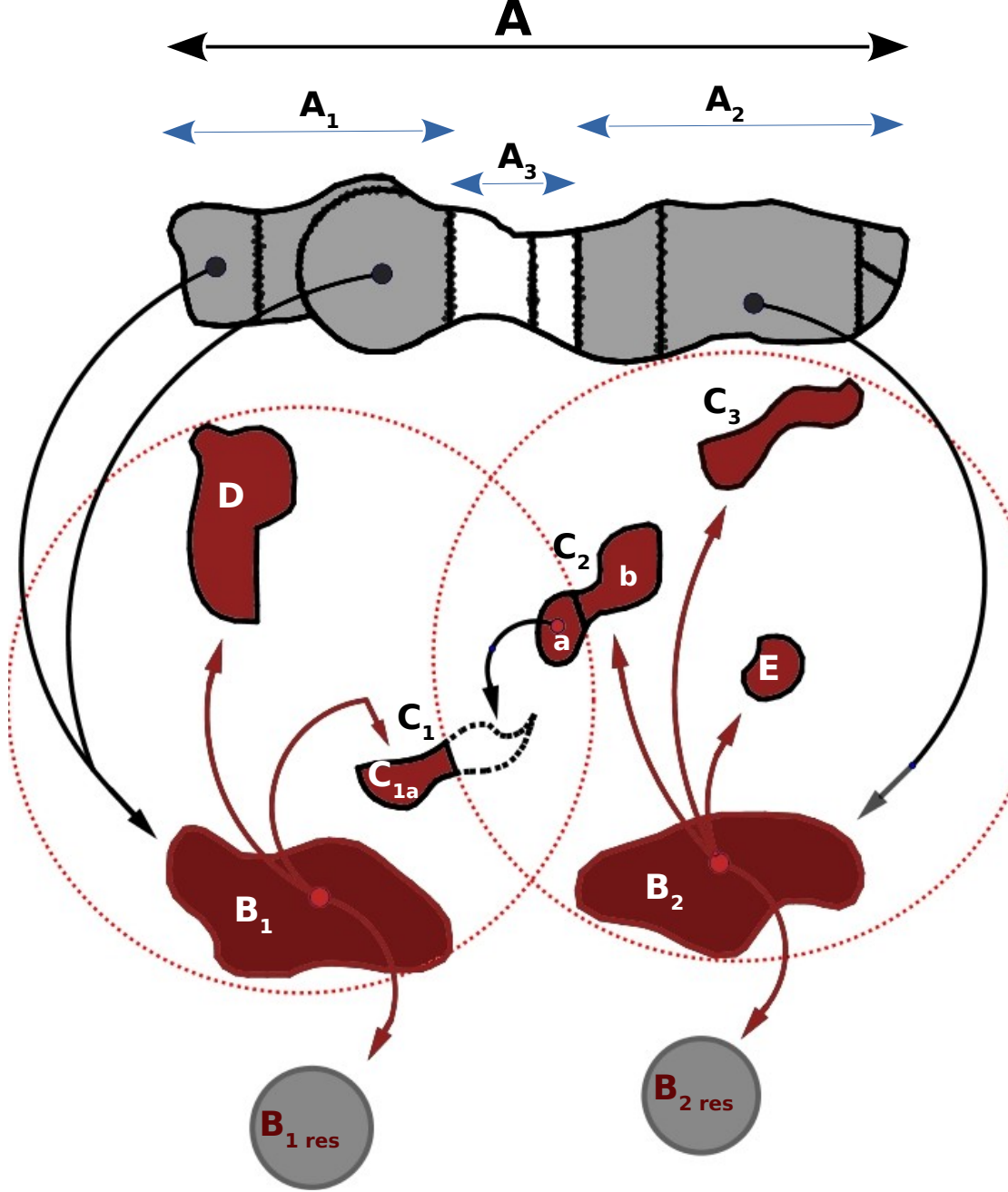
$$\frac{C_2 + E}{B_2} = \varphi^{-2} \quad (14)$$

$$\frac{C_3}{B_2} = \varphi^{-3} \quad (15)$$

The vacuum main 5 components  $C_1$ ,  $C_{2b}$ ,  $C_3$ ,  $D$ ,  $E$  are initially manifested from  $A$  (via  $A_1$ ,  $A_2$ ,  $A_3$ ), but could be generated from  $B$  as well (via  $B_1$ ,  $B_2$ ). In the latter case,  $B_{1\text{res}}$  and  $B_{2\text{res}}$  become the residuals. Fig.10 depicts this route. On the other hand,  $B_1$  and  $B_2$  could preferably be precursors for anti-matter, namely  $\overline{C_1}$ ,  $\overline{C_{2b}}$ ,  $\overline{C_3}$ ,  $\overline{D}$ ,  $\overline{E}$ . That route is favored.



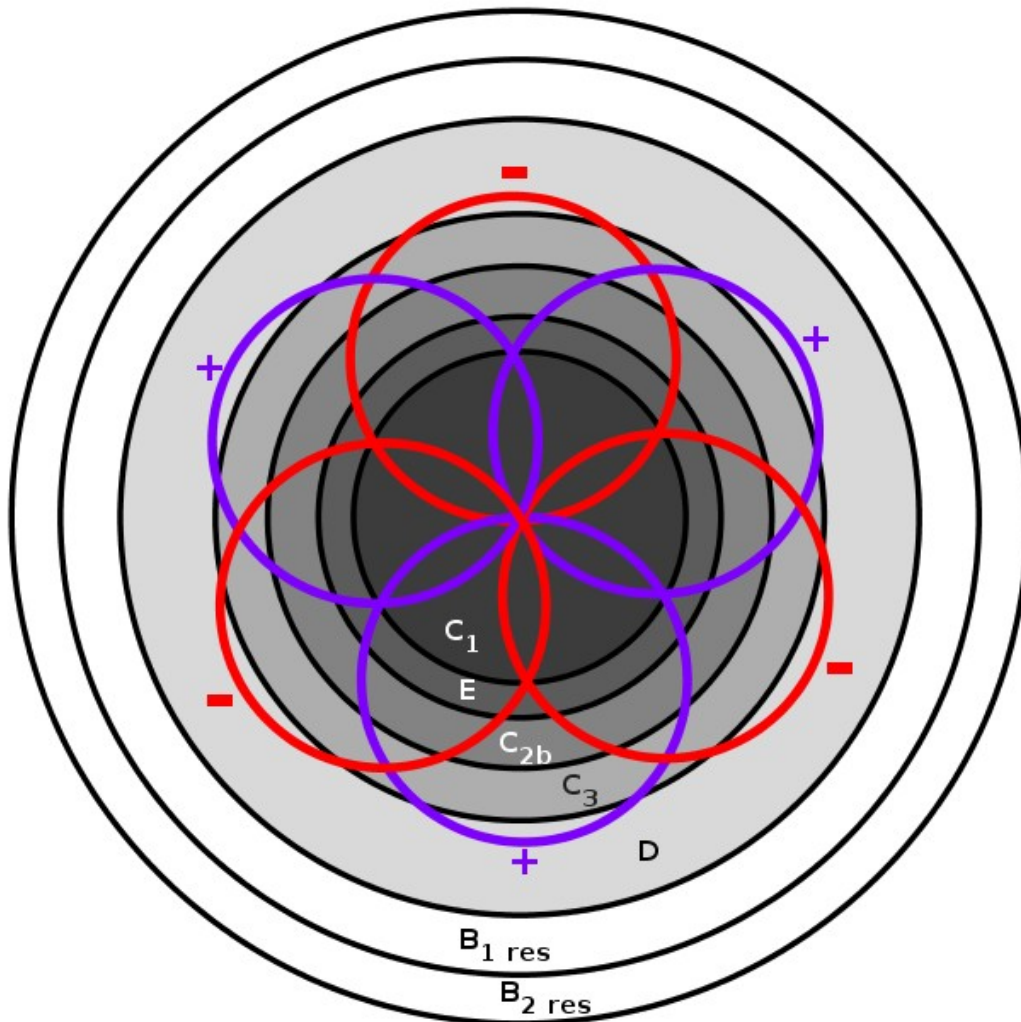
**Figure 10:**  $B_1$  and  $B_2$  as precursors for the vacuum five main components  $C_1$ ,  $C_{2b}$ ,  $C_3$ ,  $D$ , &  $E$  or their anti-matter counterparts



**6- The emergence of the six-fold symmetry in spacetime**

The existence of a 6-fold symmetry in spacetime was discussed in [8]. It appears that the positive and negative energy densities from the five vacuum components are the precursors of that six-fold symmetry, widely known and represented by the flower of life symbol. Fig.11 is a simple depiction of that interconnection.

**Figure 11:** Graphical representation of the five vacuum components as the source for the six-fold symmetry in spacetime. Circular areas correspond to exact percentages of each individual component  $C_1$ ,  $C_{2b}$ ,  $C_3$ ,  $D$ ,  $E$



## 7. Conclusion

The Big Split is a cosmological model acknowledging the occurrence of a primeval and self-existing cosmic Substance. This Substance underwent a succession of division and recombination operations which led to the observable cosmos and to other non-visible universe(s). This primal cosmic Substance is thought to be the cosmic consciousness (or cosmic mind), and the Big Split actually corresponds to its first self-division, as discussed above.

The self-division of the primal cosmic Substance leading to the vacuum components had already been discussed at [4-5]. However, it was found that the golden ratio drove the division and recombination pathways set out in this article, and these pathways are believed to be significantly closer to the actual cosmic processes that took place at the onset of the universe creation.

The vacuum components are counted five ( $C_1$ ,  $C_{2b}$ ,  $C_3$ ,  $D$ ,  $E$ ) or seven when residuals  $B_{1 \text{ res}}$  and  $B_{2 \text{ res}}$  are considered vacuum ingredients. Table 1 summarizes the final percentages of the vacuum ingredients. It is further propounded that  $B_1$  and  $B_2$  have the ability to generate the antimatter equivalents for  $C_1$ ,  $C_{2b}$ ,  $C_3$ ,  $D$ ,  $E$ , namely

$\bar{C}_1, \bar{C}_{2b}, \bar{C}_3, \bar{D}, \bar{E}$ . Each vacuum ingredient has its own energy density sign (positive, negative, or neutral) summing up all to zero.

It was also discovered that the sum ( $B_{1\text{res}} + B_{2\text{res}} + C$ ) = 69.1% is surprisingly close to the dark energy (DE) of the standard model of cosmology, while  $D = 25.9\%$  and  $E = 5\%$  seem to correspond very closely to dark matter (DM) and baryonic matter (BM) respectively in terms of percentage. Hence, the standard model of cosmology does not distinguish the vacuum ingredients  $B_{1\text{res}}$  and  $B_{2\text{res}}$  from  $C_1, C_{2b},$  and  $C_3$ . The last 3 vacuum components appear to correspond to the three cosmic ingredients/properties known as “3 Gunas” consistently reported in eastern philosophies (Hinduism, Tantrism, Buddhism, etc) over the last thousands of years. All three seem to have negative energy density.

The exact chronology of events is unknown at this time, and aside from the component “E” identified as baryonic matter (BM), the nature of the other vacuum components have not yet been identified. Further, it is not known why the primal cosmic Substance undergoes so many cleavage and recombination steps. They are believed to be electromagnetic in nature.

**Table 1:** Fractions for individual vacuum components in %

Vacuum Component Identification	Initial generation of the 7 vacuum components from the preexisting cosmic Substance (A) %	Final % after subsequent creation of antimatter from $B_1$ & $B_2$	Energy density	Comparison to the standard model of cosmology
$B_1$ (residual)	32.1	19.9	Neutral	} $69.1 \approx DE$
$B_2$ (residual)	29.7	18.3	Neutral	
$C_1$	6.6	10.7	-	
$C_{2b}$	5.5	8.9	-	
$C_3$	7.0	11.3	-	
D	16	25.9	+	$25.9 \approx DM$
E	3.1	5.0	+	$5.0 \approx BM$
<b>Total</b>	<b>100 %</b>	<b>100 %</b>	<b>Neutral</b>	

## 8. References

- [1] Wikipedia, “List of unsolved problems in physics”  
[https://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_physics](https://en.wikipedia.org/wiki/List_of_unsolved_problems_in_physics)
- [2] S. Clesse. “An introduction to inflation after Planck: From theory to observations”.  
<https://arxiv.org/abs/1501.00460>
- [3] Couronne, Ivan; Ahmed, Issam. “Top cosmologist's lonely battle against 'Big Bang' theory”. Paris. Agence France-Presse. Archived from the original on 14 November 2019. Retrieved 20 December 2019.
- [4] B.R. Galeffi. “From the Big Split of the Primal Cosmic Substance to a Five-Component Vacuum with Positive and Negative Energy Densities”. <http://viXra.org/abs/1909.0622>
- [5] B.R. Galeffi. “Self-division of the Primal Cosmic Substance. Paradigm Shift for Cosmology. Critical Step Forward for Humanity.”. <http://viXra.org/abs/2007.0041>
- [6] G. Lemaître. “The beginning of the world from the point of view of quantum theory”, Nature 127, 706 (1931)
- [7] For example, F.T. Falciano, M. Lilley, P. Peter. (2008). “A classical bounce: constraints and consequences”. <https://arxiv.org/abs/0802.1196>
- [8] B.R. Galeffi. “Physical Constants Starting with “6” or “1/6” at Various Scales: Mere Coincidence or Sixfold Symmetry in Spacetime? ”. <http://viXra.org/abs/2108.0052>