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On the Formation of Earth and Celestial Bodies

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Abstract

Understanding the formation of the solar system can provide a simplified look at the universe at large. This is because we have a lot of evidence about the formation of our solar system, and because the universe is homogeneous on a large scale. In this paper, we propose a new way for investigating the formation of the Earth and other Solar System objects. Our approach offers insights into details of the formation of the multiple layers within Earth, the existence of water and oil, the variation in mass distribution within Earth, and the origin of mountains, erratic boulders, and moons. According to our proposed approach, Roche Radius can explain the origin of moons, rings and mountains on planets. We have listed and use critical conditions that are required to form celestial objects.

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On the Formation of Earth and Celestial Bodies

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Key Points:

- Solar System evolved from gas nebula to current form via rapid Higgs field changes.
- Higgs mechanism set laws of Physics/Chemistry, enabling Earth's oil and water synthesis.
- Our method explains the formation of moons, rings, belts, mountains, and boulders.

Abstract:

Understanding the formation of the solar system can provide a simplified look at the universe at large. This is because we have a lot of evidence about the formation of our solar system, and because the universe is homogeneous on a large scale. In this paper, we propose a new way for investigating the formation of the Earth and other Solar System objects. Our approach offers insights into details of the formation of the multiple layers within Earth, the existence of water and oil, the variation in mass distribution within Earth, and the origin of mountains, erratic boulders, and moons. According to our proposed approach, Roche Radius can explain the origin of moons, rings and mountains on planets. We have listed and use critical conditions that are required to form celestial objects.

1 Introduction

The formation of the solar system has been a subject of fascination and scientific investigation for centuries. The solar system, which consists of the Sun, planets, moons, asteroids and Kuiper belts, and comets, is believed to be formed approximately 4.6 billion years ago from a massive cloud of gas and dust in a region of our Milky way galaxy (Grotzinger & Jordan, 2014). Over the years, various hypotheses and theories have been proposed to explain the intricate details of this complex process. The Nebular Hypothesis was proposed by Immanuel Kant and later refined by Pierre-Simon Laplace in the 18th century, remains a foundational theory for solar system formation. It suggests that the solar system was formed from a rotating, flattened disk of gas and dust known as the protoplanetary disk (Armitage, 2010). Gravitational collapse and the conservation of angular momentum led to the formation of the Sun at the center and the aggregation of material into planetesimals and protoplanets. As the protoplanetary disk cooled and condensed, solid particles began to stick together through processes such as coagulation and accretion, forming planetesimals. These planetesimals continued to collide and grow, ultimately forming protoplanets (Youdin & Shu, 2002). Protoplanets, formed through the accumulation of planetesimals, underwent further growth through both accretion and collisions. Simulations suggest that the formation of larger planets probably resulted from the collisions of these initial planetesimals (Wetherill, 1990; Chambers, 2003). The process was highly influenced by the distribution of material and gravitational interactions with nearby protoplanets (Kokubo & Ida, 1998). Larger protoplanets had stronger gravitational forces, allowing them to clear their orbits of nearby planetesimals and debris, contributing to the creation of distinct gaps and spaces within the protoplanetary disk (Matthews & Kavelaars, 2016).

On the other hand, the Earth's moon was suggested to have formed through a single giant collision, in which the moon accreted from the impact-generated debris disk. However, such giant impacts are rare, and during its evolution the Earth experienced many more smaller impacts, producing smaller satellites that potentially coevolved. In the multiple-impact hypothesis of lunar formation, the current moon was produced from the mergers of several smaller satellites (moonlets), each formed from debris disks produced by successive large impacts (Citron et al, 2018).

The single giant impact hypothesis is the most prevalent theory of moon formation because it explains the angular momentum of the Earth-Moon system and the Moon's depletion in iron and volatile elements. Any impact hypothesis must also explain why the Earth and moon have similar oxygen, tungsten, and titanium isotope ratios, which would normally vary among planetary embryos. Impact models can account for isotope similarities either via a gas rich protolunar disk that allows the proto-moon and proto-Earth to equilibrate, or via impact dynamics if the impactor was compositionally similar or had higher angular momentum than the present state. High initial angular momentum could be subsequently dissipated via the evection resonance, limit cycles, material ejection, or a high-obliquity Earth [8]. In every scenario, the moon is thought to have formed about 400-500 million years after the Earth came into existence (Knoll, 2023).

In this work, we propose a new way for investigating the formation of the Earth, moon and other planets. When we consider the process of solar system formation, various hypotheses and theories have been proposed to outline potential pathways for the creation of the Sun, Earth, Moon, and other celestial bodies within the system. However, with the discovery of the Higgs field, and its fundamental role in mass and gravity (CMS Collaboration, 2012); these previously proposed approaches are poised to be superseded by a more direct and straightforward mechanism. Our methodology assumes that the Solar System's initial form persisted for an extended duration prior to undergoing a swift shift in the Higgs field value, which then endowed it with its mass and gravitational characteristics. This novel approach provides a more comprehensive explanation for the early formation of the entire solar system, encompassing all its constituent parts. Furthermore, it offers insights into the formation of the multiple layers within Earth. Additionally, it offers a clear understanding of the existence of water and oil. The approach also provides a detailed account of the variation in mass distribution within Earth, from greater density at the core to lesser density towards the surface.

Moreover, our approach provides new insights into the origin of mountains, erratic boulders, the formation of the moons including earth's moon, and why some celestial bodies are spherical while others are shapeless besides to why some matter forms as moons and some forms as rings.

Our method of detailing the formation of the Earth, Moon, planets, and their satellites, as well as the components of Earth and other features of the solar system, can readily be expanded to encompass the entire history of global evolution.

2 Formation of the Solar System

In this study, we explore an alternative approach to understanding the formation of the solar system, departing from existing theories and models. We introduce a connection between two pivotal phases of the solar system and its components: a preliminary phase, which we refer to as the "precursor," and the subsequent phase. Although we do not possess precise information about the properties of the precursor, we can make informed conjectures about its general characteristics. It is likely that the precursor was in a diffuse and gaseous state, potentially encompassing all known elements in a Low-Higgs state. The transition from this initial gaseous, hot and somewhat fluid phase to the current state is attributed to a rapid change in Higgs energy from low to high value. Higgs was not merely responsible for mass and gravity restoration, but indeed it fixed all universal constants at their current exact values.

In this work, we rely on critical conditions that stand behind the formation of objects, namely:

1- Suitable heat to allow for chemical reactions.
2- Appropriate softness in conjunction with heat for material reorganization.
3- Adequate mass to generate sufficient gravitational pull.
4- Proper stoichiometric balance for complete chemical interactions.
5- Localized whirlpool for the initiation of mass nucleation.
6- Any object other than the main planets must respect the Roche Limit
7- Additional factors like density, viscosity, and location.
8- Enough time for equilibrium to occur with all the above conditions intact.

Any variation from the aforementioned conditions could result in a distribution of matter that doesn't form a fully matured body.

The vast nebula of our solar system, along with its smaller sub-nebulae and swirls that would eventually become planets and other celestial objects, underwent fluid dynamics processes over a long period. This gaseous rotation stratified the nebulae based on factors like viscosity, density, and temperature. When the altered value of the Higgs Field spread throughout the Milky way, reaching our solar system, it rapidly invoked the fundamental principles of physics and chemistry, including those governing mass and gravity. Both the main nebula and its smaller counterparts swiftly adapted to these updated laws. In a brief span, any nebula or matter swirl with sufficient mass and gravitational pull transformed into a standalone celestial entity, clearing nearby matter. Physics naturally prompted these entities to adopt spherical forms, given the right conditions over time. However, those lacking the necessary prerequisites, like adequate heat, fluidity, mass, and gravity, took on

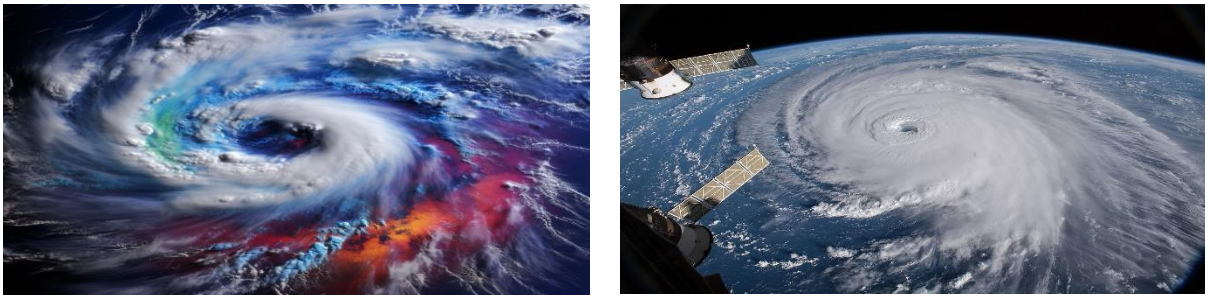

Figure 1: To the left is a generated nebula in a hurricane-like shape using AI. To the right is a real image of Hurricane Florence in 2018 as seen from the International Space Station (NASA, 2018).

irregular shapes and often became attached to larger, more developed celestial bodies.

The conditions for planetary formation are not solely defined by geometry. The presence of various chemicals and elemental compounds played a crucial role, with these elements undergoing reactions under challenging conditions like temperature, pressure, duration, and the presence of catalysts or inhibitors. For instance, during its formative phase, Venus likely had temperatures higher than Earth's. However, Earth's moisture and the presence of elements like nickel might have influenced its early development in distinct ways. On Venus, the high temperature (possibly 700°C or higher) and lack of moisture likely facilitated the combination of oxygen (O_2) and carbon (C) to produce dense CO_2 in the atmosphere. In contrast, Earth's cooler temperature and the faster accumulation of water vapor hindered extensive CO_2 formation. Instead, carbon combined with hydrogen to produce hydrocarbons at temperatures between 300-500°C, with longer hydrocarbon chains being favored at higher temperatures. The presence of nickel on Earth might have further facilitated this process. Interestingly, Earth, situated between Venus and Mars — both with CO_2-rich atmospheres indicating similar abundance of carbon in its precursor together with other key elements such as hydrogen and oxygen. These elements, under favorable temperatures, led to the formation of oil (in the form of hydrocarbons) and water, which simultaneously curtailed excessive CO_2 development.

Delving deeper into the distribution of mass and density across Earth and the broader solar system reveals a pattern: denser materials tend to be closer to the center. On Earth, density ranges from about 13 g/cm^3 in the core to approximately 2.7 g/cm^3 in the crust. A similar trend appears in the solar system. Mercury, with its rocky and metallic composition, has a density of about 5.4 g/cm^3. Venus, also rocky and metallic but partly gaseous, has a slightly lower density of 5.2 g/cm^3. Mars, composed of rocks and metals, has a density of 3.9 g/cm^3. Jupiter's composition, predominantly of hydrogen and helium, gives it a density of around 1.33 g/cm^3, and this pattern continues with the other planets. These consistent characteristics in material density distribution might indicate shared conditions prior to their formation. It suggests the influence of fluid dynamics on the spatial distribution of components, possibly pointing to distinct layers or rings concentrated around the central nucleus of the nebulae. As a result, such Earth layering arrangements might not be attributed to convection and other mechanisms (Cobb, 2009).

2. 1.0 Earth Formation

G. W. Wetherill wrote: "*Probably the most fundamental problem of geology is that of understanding the physical and chemical processes and events that controlled the formation of the Earth and determined its initial state*" (Wetherill, 1990).

Let us delve deeper into the exploration of Earth's formation as it serves as a readily comprehensible starting point. Interestingly, we have shown some parallels with the broader solar system throughout this discussion. In our examination of Earth's precursor, it's crucial to highlight the diverse characteristics it likely possessed: varying densities, viscosities, and uneven heat distribution. Additionally, it would have exhibited a rotation akin to the swirling motion of a hurricane, ultimately giving rise to an expansive disk in space. This disk, influenced by the rotation of the solar system nebula, maintained its rotational momentum.

While Earth formation is still in mind, it's important to recognize that its precursor comprised various composites organized into distinct concentric layers based on factors such as density, viscosity, heat, and other considerations. The fundamental dynamics governing this arrangement were primarily influenced by the rotational and fluid dynamics within this mixed medium. As we delve into the subsequent phase and the behavior of the rotating fluid substances, we observe a gradual decrease in density as we move outward. This resulted in the presence of lighter gaseous elemental matter such as hydrogen and oxygen occupying the outermost regions of the rotating nebula or vortex disk.

The Earth's precursor essentially encompassed all the elements and materials we now find on our planet but in a pre-formed state. However, this original precursor was not a homogeneous blend of all these components. Instead, the sustained rotation at a fixed angular velocity over extended periods of time refined it into several distinguishable layers of sub-precursors. Each of these sub-precursors was poised for transformation into a major layer (or partial layer) of the Earth's body once the triggering event involving the Higgs occurred followed by the necessary chemical reactions. Additionally, there existed a significant abundance of hydrogen, oxygen, and carbon, primarily in gaseous states at the outermost rings of the nebula.

Subsequently, while still hot, these elemental components, initiated transformation into the normal atomic features then involved chemical reactions with other substances catalyzed by the heat and existence of different elements, giving rise to the formation of final composite materials. For example, the Earth's crust, composed of 47% Oxygen, 28% Silicon, 8% Aluminum, and a variety of other elements including Iron, calcium, sodium, potassium, and magnesium, emerged as these elements underwent transformation from their pre-Higgs gaseous states followed by chemical reactions. The proportions of each element in the crust were determined by their relative abundances and conditions of stoichiometric chemical ratios. It's important to note that the heavy elements on Earth and crust existed mostly as oxides, such as: SiO_2, Al_2O_3, Fe_2O_3, FeO, MgO, CaO, Na_2O and K_2O (Cobb, 2009; Mielke, 1979). This suggests that the abundance of highly reactive oxygen played a significant role by chemically interacting with these elements during the planet's early formation.

Concurrently, abundant hydrogen engaged in chemical reactions with oxygen, resulting in the creation of water, while interactions with carbon led to the formation of hydrocarbons as raw oil composites. This ongoing chemical evolution played a pivotal role in shaping the composition of the Earth and its surrounding environment.

Concerning the formation of water on Earth, and apart from current theories such as in the reference (Morbidelli et al, 2000), our understanding is that, due to elevated temperatures, largely abundant hydrogen and oxygen combined to create hot and dense steam that lingered in the atmosphere for a long period. As Earth gradually cooled, this steam began to condense, ultimately giving rise to an independent layer of water enveloping the spherical planet. It is hypothesized that this water layer was considerably thick, potentially covering a substantial portion, if not the entirety, of Earth's mountains. This phenomenon may offer insights into the enigmatic presence of marine fossils discovered atop mountains (Tyborowski & Błazejowski, 2019) and suggests an extended period during which Earth was enveloped by water. Over an extensive timeframe, Earth's tectonic layers underwent continuous mechanical movements, resulting in the formation of valleys and canyons that collected water and gradually expanded, eventually giving rise to the world's oceans. A significant portion of the water managed to penetrate beneath Earth's upper subshells through this protracted geological process (Eisenberg, 2006; Fei, 2020).

Conversely, the origins of oil and natural gas can be traced back to chemical reactions involving the abundant hydrogen and carbon during the early birth of earth. We have shown before that earth was sandwiched by two planets that are still rich in carbon that reacted with only available oxygen forming CO_2. It is highly probable that these compounds were synthesized during the rapid formation of the Earth's crust and have remained trapped within it ever since assisted by suitable chemical reaction conditions. One should note that at temperatures higher than 150^{o}C, the oil becomes unstable and breaks down, or “cracks,” to form natural gas (Grotzinger & Jordan, 2014).

It's worth mentioning that certain planets, like Uranus, with approximately 80% of its composition being hydrogen and about 15% helium, didn't meet the chemical conditions necessary for hydrogen to effectively combine with other elements to form solid or liquid substances. Moreover, Uranus has its mantel mixed with methane ices while its atmosphere includes large amounts of methane gases (2.3%).

2.1.1 Origin of Mountains and Boulders

A crucial aspect to consider when discussing the formation of Earth's geological layers is the presence of an incomplete layer or shell of matter situated near the original precursor of our planet. This layer could have undergone transformation into a multitude of moons or even taken on the form of rings, akin to the distinctive rings surrounding Saturn. Only Fluid Roche Limit may have specified the form of that mass distribution (Darwin, 1910). However, being in critical distance from the central gravitational force of what became the earth, allowed them to be pulled towards the surface of the planet shortly after the earth body was constructed. To envision this, we can picture it as dense, weighty clouds dispersed across the nascent Earth's sky consisting of Oxygen and Silicon among other elements. When influenced by the arriving new Higgs Field, imparting mass and gravity, these cloud-like structures descended to the Earth's surface, thereby giving rise to mountains, boulders, and various surface stones. This perspective offers an explanation for the existence of enormous erratic boulders found worldwide, particularly in regions that have never experienced glaciation. Furthermore, it sheds light on the observation of numerous small stones and debris scattered over extensive desert areas. This shall not be confused with other types of mountains such as sedimentary or volcanic. Interestingly, the topography of Mars, as recorded by missions such as Curiosity and Perseverance, exhibited certain similarities with Earth, adding an intriguing dimension to our understanding of planetary processes.

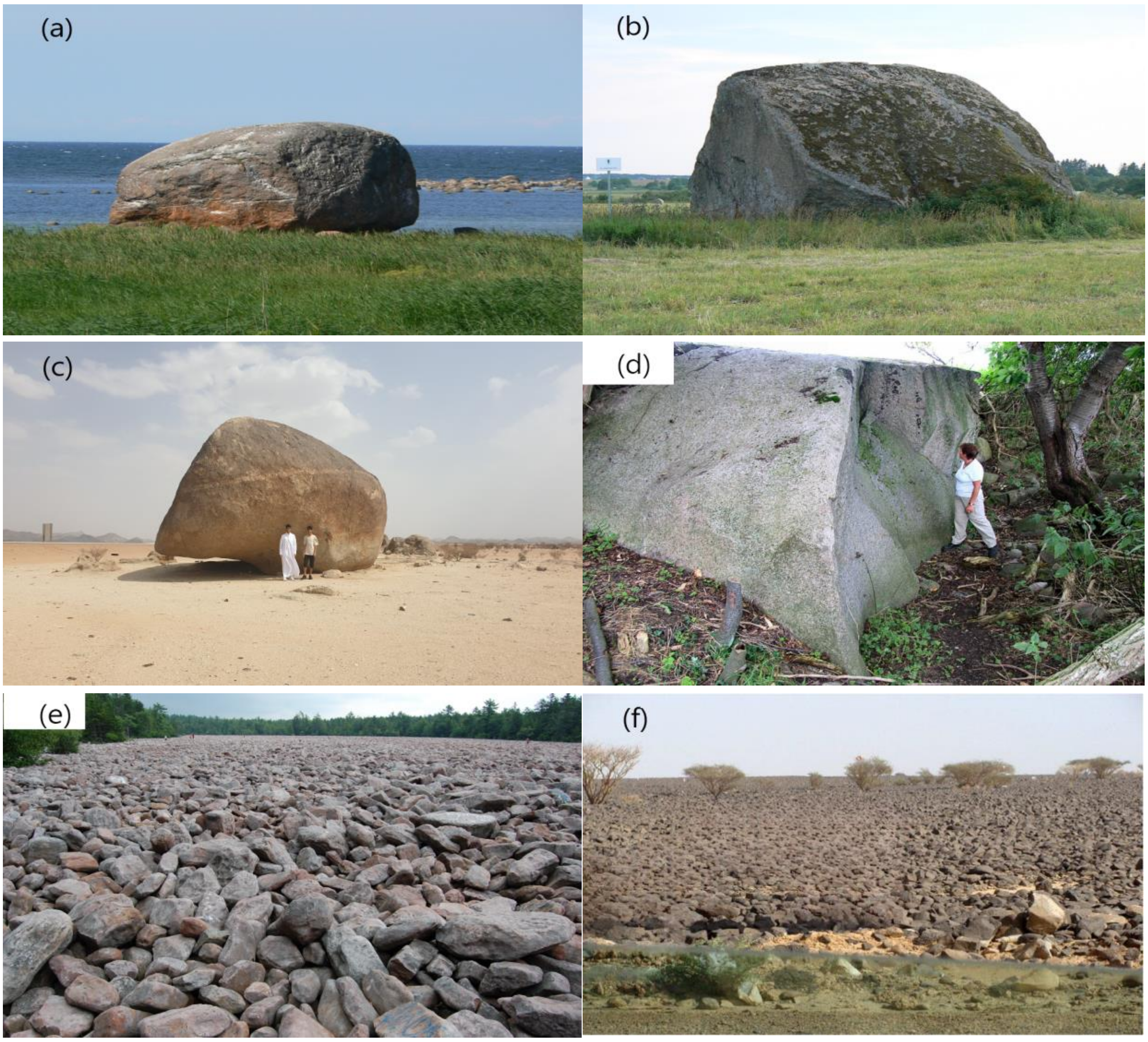

Figure 2: Some images of erratic boulders and scattered stones from earth. (a) Sunset Glow Boulder, an erratic boulder in Letipea, Lääne-Viru County, Estonia. This boulder is 930 m3 and is around 2500 Tons (Wikipedia, 2009). (b) Ellandvahe glacial erratic in Estonia, The circumference of the stone is 31.3 meters, length 12.0, width 8.9 and height 5.9 meters (Wikimedia, 2010). (c) A huge boulder at southwest area of Saudi Arabia. (d) The Nardevitz Erratic is one of the largest glacial erratics in North Germany. Its volume is estimated at 104 m^3 mass of 281 tons Wikipedia (2006). (e) The boulder field at Hickory Run State Park in Pennsylvania, PA, USA. 15,990-acre Wikipedia (2007). (f) Scattered stones over large areas of Aren valley near Madina, west of Saudi Arabia, (2021). Dessert of Saudi Arabia is wealth in such type of stone distribution.

2.1.2 Moon Formation:

Imagine a substantial volume of cloud or a distinct eddy, possibly resulting from shear instabilities within the larger nebula, positioned at a strategic distance from the earth precursor beyond the Roche Limit. This swirling vortex or cloud formation essentially served as a precursor, predominantly composed of Oxygen (44%), Silicon (21%), Magnesium (20%), and Iron (11%), alongside trace amounts of other elemental components. When this cloud encountered the altered value of the Higgs field, it succumbed to the gravitational pull it had newly acquired, leading to the formation of the moon's body. Initially delicate, the moon benefited from meeting minimal energy requirements and having the necessary conditions in place, gradually adopting a spherical shape under the influence of its own gravitational forces during its formative stages.

The precursor of the moon bore striking similarities to that of Earth prior to our planet's formation. As a consequence, the principle of gravitational symmetry can elucidate why both Earth and the moon assumed spherical forms during their respective formation processes. If we postulate that they began as pliable, high-temperature bodies, gravity played a pivotal role in coaxing them into spherical configurations. This is attributed to the fact that, among all shapes, the sphere possesses the lowest attainable energy for a given volume, aligning harmoniously with the symmetrical influence of central gravitational forces. Only hot and soft matter can fully and easily respect these conditions. Furthermore, the moon's rotation at the precise speed and distance from Earth was subject to analogous energy considerations, further shaping its relation to earth.

2.2 Formation of Other Planets and Objects in the Solar System

Applying the same approach to understanding the formation of other planets within our solar system is a feasible endeavor. However, it's essential to acknowledge that the precursors for each planet varied significantly. These variations were predominantly dictated by their respective distances from the central core of the solar system nebula, leading to diverse compositions and a wide range of physical, chemical, and mechanical properties among the planets.

The principles that elucidate the formation of Earth and its moon can be extended to elucidate the characteristics of all celestial bodies, whether they orbit larger planets or maintain independent orbits, such as the Asteroid Belt. The initial conditions, including factors like heat, size, viscosity, and density, together with distance from the central force and time played pivotal roles in shaping these celestial objects.

In numerical studies, M. E. Caplan explored the concept of the "Potato Radius," which represents the minimum radius necessary for an object to assume a spherical shape. His findings indicated that this radius typically falls within the range of approximately 200 to 300 kilometers which is in good agreement with shapes of the moons of the solar system (Caplan, 2015). This insight underscores the idea that objects in close proximity to larger celestial bodies either gravitated towards these massive objects during their formation, thus forming mountains, boulders or shattered by strong gravity of the planets into small stones or positioned themselves in stable orbits around these planets. However, there are also celestial objects that found themselves in neither of these scenarios. Consequently, they became nomadic entities in space, continually moving under the influence of the collective gravitational forces exerted by the more substantial celestial bodies. This diverse group includes meteors, comets, and other free-roaming celestial objects.

Figure 3: (a) Eros Satellite (Mars by NASA). (b) Deimos Satellite (Mars by NASA).(c) Asteroid by NEAR Project, Galileo Project, NASA.

Our analysis of mass formation, considering the delayed emergence of the Higgs boson value and the prerequisites for achieving complete spherical shapes, offers insights into the enigmatic nature of the Asteroid Belt. It helps explain why we observe this intriguing assembly of small celestial objects. Factors such as insufficient density and heat, along with potential disruptive influences from other celestial bodies and critical distance from the sun, may have prevented the formation of fully developed celestial bodies within the Asteroid Belt or even turn it into one single planet. However, some portions of matter within this region did manage to meet the minimum conditions for spherical formation, as exemplified by the dwarf planet Ceres. This suggests that within the solar system, there might have been four distinct levels of density and matter distribution: the formation of the sun with abundant hydrogen, the creation of fully qualified planets, the emergence of spherical moons, and the existence of irregular rocky bodies, regardless of their size. Any lower-density matter likely underwent gravitational interactions with one of these aforementioned bodies, leading to its clearance of the space.

2.3 Incomplete Formation of Asteroids and Kuiper Belts:

The solar system houses two prominent regions filled with smaller celestial bodies: the asteroid belt, situated between Mars and Jupiter, and the Kuiper belt, found beyond Neptune. As highlighted previously, specific time, physical and chemical conditions determine whether celestial entities fully form or remain incomplete. In the case of the asteroid belt, its total mass is notably less than the moon's. Consequently, it doesn't possess the necessary mass to generate significant gravity and evolve into a complete planet. The initial material of the belt revolved around the dense core of the solar system nebula, needing a localized vortex to initiate gravitational collapse, essential for planet formation.

Conversely, the Kuiper belt might possess a greater mass, potentially enough to shape a full-fledged planet. However, its remote location likely meant it lacked the essential heat, coupled with a low density of approximately 1 to 2 g/cm^3. Given the expansive spread of material (~ 20 AU), combined with insufficient heat and the absence of localized vortices for planet nucleation, the matter remained largely unchanged. Nevertheless, the transition from a pre-Higgs state to the subsequent standard state aided in the creation of smaller bodies with diameters around 100 km or smaller.

3 Critical Conditions and Celestial Body Formation:

The sudden alteration of the Higgs field played a pivotal role in the creation of all entities within the cosmos from their precursors. Nonetheless, numerous essential prerequisites underpinned the ultimate composition and characteristics of these entities. Here, we emphasize the significance of Hydrogen, Oxygen, and Carbon abundance, coupled with the influence of heat and gravitational forces. Earth's conditions were particularly conducive, resulting in the formation of water and oil besides the solid layers such as the crust. In contrast, when examining other celestial bodies, we observe the absence of at least one of these crucial conditions, thereby preventing the completion of chemical reactions from taking place. It appears that lack of suitable elemental matter and varying gravitational strengths, as well as extreme temperature conditions, either too high or too low, were the primary factors contributing to the incomplete reactions on these bodies.

In the mid-1800s, Édouard Roche described the shape an infinitesimally small liquid satellite would adopt while orbiting a solid planet, influenced by tidal forces and inherent instabilities. As G. H. Darwin elaborated (Darwin, 1910), Roche identified three pivotal factors: the satellite's size relative to its planet, the satellite's material phase, and the distance between the two celestial bodies. However, Darwin highlighted that the primary planet need not be solid. He introduced the term "Roche Limit" or "Roche Radius," defining it as approximately 2.455 times the planet's radius for liquid satellites. Beyond this boundary, a satellite can maintain its structure. But if situated closer, tidal forces would disintegrate it, potentially forming a ring.

What stands out is the emphasis on the satellite's liquid state. It's improbable for celestial bodies orbiting planets to fragment unless they possess a certain malleability or fragility. This lends credence to our proposed formation theory discussed here. As per our understanding, no methodology presumes a celestial body's entirety to be in a liquid or malleable state, except for our approach. Numerous solid entities, like Comet Lovejoy, have ventured closer than the Roche Limit to celestial bodies like the Sun or Earth without disintegrating (Wikipedia, 2011).

From our perspective, the Roche Radius played a significant role in the Solar System's formation. Earlier, entities that surpassed the Roche Limit fallen into Earth surface — sometimes as large entities like boulders, and at other times breaking into smaller fragments such as pebbles due to Earth's tidal forces. If the water thick layer was formed before the happening of this; it would have helped in absorbing the impact. In Saturn's case, materials that approached its critical proximity while remaining malleable were fragmented, contributing to the formation of its rings. We believe that the Roche Limit concept requires further refinement, incorporating factors like angular velocity, material phase, dimensions, the gravities of both involved bodies, and other previously mentioned conditions.

4 Conclusions

In our research, we have uncovered a multitude of significant findings that provide insights into the formation of celestial bodies and the structure of our universe. These discoveries encompass the formation of the solar system, earth, moon, and planet. In more details, we talked about the possible origin of mountains, the explanation for erratic boulders, particularly in hot regions like Saudi Arabia, and the understanding of scattered pebbles and small stones over expansive areas of earth as well as mars. Additionally, our research has shed light on the creation of distinct layers within the Earth, the origins of oil and natural gas, the processes behind water and ocean formation, and the genesis of all celestial bodies including other moons and rings around planets. Furthermore, we have proposed the simultaneous formation of all planets and moons, the consistent spherical shape of large objects, and the deviation from spherical shape for smaller bodies such as the asteroid belt. Our findings also contribute to the comprehension of Earth's density distribution, transitioning from denser cores to less dense exteriors.

To put it in points: Our approach can easily solve for:

1. Formation of the Milky Way Galaxy 9 billion years after the big bang (Tarbuck & Lutgens, 2012). It's suggested that changes in the Higgs Field at the Universe's borders propagated at the speed of light, reaching the Milky Way Galaxy after 9 billion years. The estimated age of this galaxy is 4.6 billion years.
2. Formation of mountains, particularly of the igneous type.
3. Presence of erratic boulders, notably in warmer regions like Saudi Arabia. Extending this vision to Martian topology is possible.
4. Distribution of scattered pebbles and small stones across extensive areas.
5. Layered structure of the Earth.
6. Genesis of oil and, subsequently, natural gas.
7. Origin of water and, in time, the formation of oceans.
8. Potential reasons for the presence of marine fossils on mountain summits.
9. Lunar origin and development.
10. Genesis of other celestial bodies in our solar system.
11. Formation of additional moons and planetary ring systems.
12. Concurrent formation of all planets.
13. Spherical shape adopted by large celestial entities like planets and moons.
14. Deviation from a spherical shape in smaller entities, such as those in the asteroid belt.
15. Distribution of density within both Earth and the broader solar system.

Data Availability Statement

Data were not used, nor created for this research.

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