

"Origin of Moon" was verified by "Multi-Impact Hypothesis"

Velocity and Angle from Theoretical,

Lunar Sea on Front Side *always faces to Earth*, Back Side *Less Sea on Clator*,

Luna(Coreless) Formation Mechanism by Mantle Impactor.

*Akira Taneko¹

1. SEED SCIENCE Lab.

[Situation] Origin of Moon has been challenged in Various Ways for a Long Time. First from Religions and Shamans to Guru, then Philosophers, Politicians, Scientists, and Poets. As for Grounds, Objectivity such as Logic and Mechanism is required from Legends, Thoughts and Ideals, Delusions and Self-Righteousness. With increasing Knowledge, Coincidence with Nature (SCIENCE) becomes an Evaluation Criterion of Correctness, but some people are addicted to Authoritarianism and Dogma. First, there is No Discussion of Impactor Feeding Zone.

[Hypothesis] Giant Collision Theory GIH was known as Origin of Moon. It is said that a Differentiated Planet of Mars size causes an Arbitrary Velocity, Angle and Tangential Collision that can be called a Coincidence, and becomes a Satellite of Earth. Simulation explains that Colliding Body Mantle becomes Moon, but Mystery that Both Mantles have Same Component cannot be explained. Potential Energy of Formed Moon is as low as $1/20$, Yet Another Mechanism is needed.

The Model that inevitably creates Moon naturally due to Collision, and can explain all other properties. If an impactor with only Mantle collides with Earth, Earth's Mantle will pop out and become Luna, and the moon and Earth's Mantle are the same substance, so I suddenly thought that it would be interesting. Problem is **Formation Mechanism of Collision Body only in Mantle**. *I discover now!*

1. Idea of Inevitable Collision model of Moon only in Mantle, and Completion of Formation Mechanism

Differentiation and Separation are required to separate Planet's Mantle and Core.

In a Collision, it scatters in All Directions. Rupture is a way to separate planets without Colliding.

To do this, you need to pull from Other side than Sun. Looking at Solar System, Asteroid Belt was vacant, and Jupiter (a giant gas giant) was on Outside.

Initially, Distance between Sun and CERRA is about Same as Distance between CERRA and Jupiter. In order for this CERRA to rupture, it is necessary to bring Distance to Jupiter very close. Approach Mechanism is transmitted by a Method called Perturbation at each Meeting Cycle between Jupiter's Perigee and CERRA, and Distance is gradually shortened by pulling Orbit of CERRA toward Perigee. Shortening of Distance starts little by little at Beginning and increases later.

If Strength of CERRA is stronger than Tension, Orbit changes to Orbit where Attractive Forces of Sun and Jupiter are balanced, and Perturbation Ends. If Tension is greater than Strength of CERRA, it will rupture into a Train Mantle Asteroid like Comet Shoemaker-Repi 9 and Orbit in a Row in an Elliptical Orbit. I think this is a Model called Creative Leasoning.

2. Collision **Velocity** and Collision **Angle** are calculated by Theoretical Calculation.

When CERRA at Ceres position ruptures due to Jupiter's Perturbation and Collides with Earth as Asteroid Belt and **Train Mantle Shards**, Since Source of Perturbation is Difference in Gravitational Pull between Sun and Jupiter, Square of Distance ratio (Sun-CERRA: CERRA-Jupiter) and Mass ratio (Sun-Jupiter) match in a Balanced Orbit. Relative Velocities and Angles on Ground Surface at Collision Position were **V = 12.4km / s** and **36.45 °**.

3. Match between **Orbital Energy of Moon** and Potential Energy of Orbit by Theoretical Calculation of Moon.

---From theory, **Quantitative Values were in Agreement with Nature.**

Similarly, Potential Energy of Orbital Position due to Ejection of Moon is calculated from Kinetic Energy, taking into account Coefficient of Restitution and Secondary Cosmic Velocity of 10.2 km /s, and is **about 60 × Re**. This Value can explain **Current Moon** and is **about 20 times** that of GIH.

4. **Lunar Mare** is only on Front Side, and Lunar mare always faces **Earth**

Composition of Lunar Mantle is made up of Mantle ejected from Earth, which is Reason why Both Mantle are almost Same. Nature of Mantle, which is denser toward Inside of Earth, is preserved as Ejected Moon Mantle, which is Reason why Moon is eccentric. By rotating around Common center of Gravity of Moon and Earth, we can explain all Reasons why Moon always faces Earth. Black Basaltic Material was covered by melting near Crust at Time of Collision, and it melted by Collision Remelting during Heavy Bombardment of Meteorite, and Lunar Mare was formed by Outflow, resulting in a Black Rabbit Pattern on front side. Far Side of Moon is similar in Material, so it remains a Crater like Mars.

This time, on S-IT16 (4 Fri E), M-IS10 (5 Sat E), M-IS24 (6 Sun J).

Figure 4 shows Evaluation Table in which **TANEKO** was added to 2020, addition to Table Supplemented by **Mr. Kuramoto**, to Evaluation by **Mr. Wood (1986)**.

There were 8 items on Horizontal Axis, but 7 new Items were added for **TANEKO.all A**.

Keywords: Origin of the Moon, Moon Formation Mechanism , Abduction, Creative Reasoning , Theoretical Calculation Collision Velocity Collision Angle , Moon orbit energy match Luna, Sea of Moon Front Side Front Side of Luna always facing Earth, Mantle Impactor Formation Mechanism

