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Moon Station Night to Day and Cooling to the Sun

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Abstract: This research presents an innovative astronomical model that transforms the lunar surface into a highly reflective mirror by heating it to the point where its soil melts, forming a glassy layer that enhances the reflection of sunlight. This increases nighttime illumination on Earth and reduces the sun's heat by reflecting some of the radiation back into space. The study proposes a technical method for this by using nuclear missiles directed at specific areas of the lunar surface, transforming silica-rich sand into glass, similar to what happens in meteorite impacts. The research discusses the comparison between this idea and previous experiments, such as spraying calcium carbonate into the atmosphere to reduce the sun's heat.

The objective observation about the moon is the regular cycle of its phases (phases) and the constant change in the shape and size of the illuminated part of it excludes the possibility that the light emitted by the moon is of the moon itself, because it is impossible to imagine a natural process occurring on the surface of the moon that could light up and darken all its parts by way of a precise system that makes clear boundaries between darkness and light.

INTRODUCTION

Global warming and rising global temperatures pose an existential environmental threat. Proposed attempts to reduce the sun's heat include using reflective mirrors or spraying materials into the upper atmosphere. However, these attempts have been limited in scope or impact, or have been experimentally halted for reasons of cost or environmental risk. In this paper, we propose an astronomical solution based on the moon as a nearby body that can be transformed into a giant natural mirror using nuclear energy to heat its surface into glass.

In the past, scientists tried to provide their explanations for the fall of objects on the Earth. The Greek philosopher Aristotle explained it by saying the natural direction that all objects are "down" to the center of the universe is mistakenly, if not intentionally mis-represented as the Earth's centre.

Later, the scholar Nicolaus Copernicus noticed that the planet's orbits around Earth would make more sense if the sun stood at the centre of our solar system instead of having Earth at its heart (and so extinguishing any belief in us being in the centre of everything). After that, mathematician and physicist Isaac Newton built on the discoveries of Copernicus to determine that when planets are tugged by the sun, objects pull on each other with a gravitational force.

It's just that it takes a very simple solution and tells us we'll never understand its details Sir Isaac Newton introduced one of the most famous suitably-holy-shit science values ever in 1687, the so- called law of universal gravitation, as stating that the forces of attraction between two physical bodies are directly proportional to the product of their masses, and inversely proportional to the square of the distance between their centers**.**

It is typically expressed as (F=G×(M1M2)/r2). Where: F = gravitational force m1 and m2 are the masses of the two objects r = separation distance. (Where G is the gravitational constant, a basic constant that is experimentally determined)

Gravity is the weakest of the four fundamental forces, as evidenced by the fact that a single bar magnet is capable of lifting a metal paper clip up electromagnetically, overcoming the entire force of Earth's gravity. According to physicists, gravity is weaker than electromagnetism by a factor of**. .(** 10^40 (that is I00$^{4°}$)

But why, among the fundamental forces, gravity is the weakest? Explaining this is a profound challenge for physicists, and an essential milestone on the path to a unified theory of all forces, as unifying the four fundamental forces in one theory is a long-term scientific dream**.**

According to a report on the Live Science website, scientists believe that while the effects of gravity can be clearly seen on the scale of things such as planets, stars, and galaxies, the force of gravity on everyday objects is very difficult to measure**.**
According to the scientific journal PNAS, 1798 British physicist, Henry Cavendish performed one of Earth's first high precision experiments attempting to determine accurately the value for G!.

Cavendish developed an experiment using what is called a torsion balance, where two small lead balls are fixed to the ends of a beam hanging horizontally from a thin wire. And put one of the large lead spherical sinkers near each of the small balls.

The little lead balls were attracted by gravity towards the large weights of lead, and he measured the G value from a small amount in which the wire twisted. The modern value of G is 6.674 * 10^−11 m^3kg^-1s^2, and Live Science notes that Cavendish’s measurement of G was actually just 1 percent off from this number.

Most other cosmological constants are measured to be significantly more precise, but because the gravity one is so weak, researchers have to build finely tuned instruments and look for tiny responses; Yet – of all things – a more accurate definition of G has been beyond their means.

Albert Einstein initiated the next revolution in our thinking about gravity, when his theory of general relativity proposed that gravity is caused by space-time curving, so that even light rays — which have to follow this curvy space and thus can be bent by extremely heavy objects.

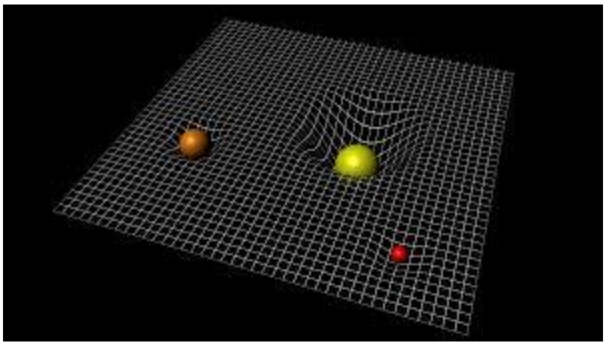

Fig (1): Energy levels of particles in gravity

Einstein’s equati ns rule instead. baffles scientists in other ways, as well. The standard model of particle physics, the theory that describes nearly all known particles and forces, does not take gravity into account.

Astronomers have since discovered real black holes in space, and were even able to capture a detailed image of the supermassive black hole at the center of our galaxy. Other telescopes have witnessed the effects of black holes throughout the universe**.**

The application of Newton's law of gravitation to very light objects, such as humans, cells, and atoms, remains somewhat of an unexamined frontier; Researchers assume that such entities must attract each other using the same rules of gravity as planets and stars, but given weak gravity, it is difficult to know for sure. Perhaps if scientists could accurately measure gravitational forces, it would be possible to understand the hidden aspects of the universe**.**

Even though light has a particle, the photon, physicists have no clue whether there is one from gravity — which they might call a graviton.

On the flip side, we continue to apply gravity to make surprising discoveries. In the 1960s and '70s, astronomers Vera Rubin and Kent Ford demonstrated that stars in the outer reaches of galaxies were not behaving according to the way that Newtonian physics said they should. rotating too fast, as if an invisible mass was pulling them with gravitational force, then shining light on a substance scientists now call dark matter**.**

MATERIAL AND METHODS

The moon, as we know, is a celestial body orbiting Earth. It does not emit its own light, but rather appears to us at night as a result of the reflection of sunlight falling on it. The sun is the primary source of light in our solar system, radiating its rays in all directions. These rays reach the planets and moons surrounding it, including the moon.

When sunlight falls on the moon's surface, some of these rays are absorbed due to the rocky nature of the moon's surface, while the other part is reflected. This reflection is what makes the moon appear illuminated from Earth, even though it has no inherent ability to produce light.

However, it is important to note that the moon's surface is not smooth or shiny like a mirror. Rather, it is riddled with craters, gaps, and rocky terrain, which causes its light to reflect irregularly. This means that the reflected rays scatter in several directions instead of returning in a single beam, as occurs when reflecting from a smooth surface. For this reason, moonlight can be seen from different locations on Earth's surface, even when the moon is not directly opposite the sun.

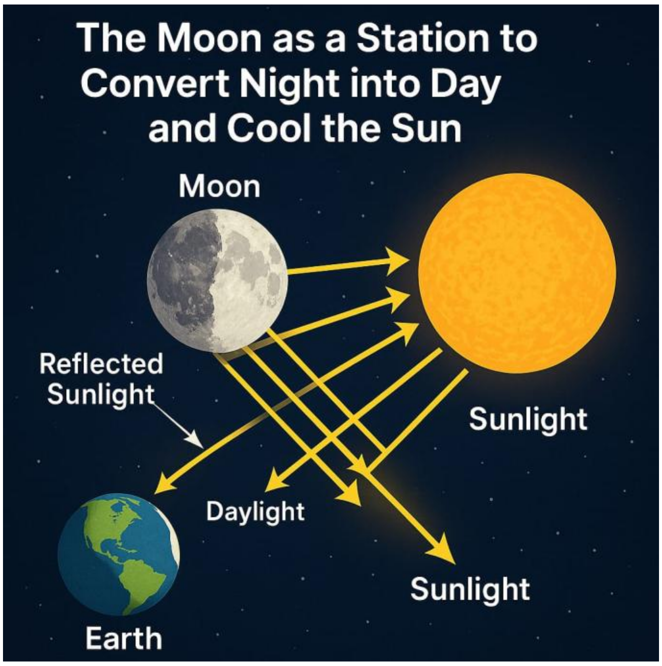

Fig (2): Triple simulation of the Sun, Earth, and Moon

1. Proposed Technical Mechanisms:

- A spacecraft launched from an advanced country.
- Five cruise missiles equipped with low-yield nuclear warheads.
- A precise navigation system to guide the missiles to five specific locations on the lunar surface with a balanced geometric distribution.

2. Physical Mechanism:

- The heat of a nuclear explosion heats the silica-rich pregolith (lunar soil.(
- The heating results in the melting and transformation of sand and rocks into transparent or semi-transparent glass.
- Glass reflects sunlight more effectively than untreated soil.

3. Theoretical Calculations:

- The reflectivity of glass is ≈ 70–90% compared to the original lunar soil (only 12%.(
- The targeted coverage of the lunar surface with glass is ≈ 15–25%.
- The effect on Earth's nighttime illumination depends on the angle of reflection and the relative distance between the Moon and Earth.

Fig (3): Formation of the reflective mirror on Earth

RESULTS AND DISCUSSION

Numerical simulation of sunlight reflection from the lunar surface to Earth using astronomical software (such as Stellarium or MATLAB).

- Thermal models to calculate the amount of radiation reflected back to space and its effect on the average temperature of Earth's atmosphere.
- Visual analysis to estimate the percentage increase in nighttime illumination across different geographic regions on Earth's surface.
- Significant increase in lunar reflectance: The model shows that converting 20% of the lunar surface to glass could increase nighttime illumination on Earth by up to 60% in some locations.
- Limited reduction in solar heat reaching Earth: Theoretical results indicate a potential temperature reduction of 0.3–0.5°C over several months of implementation, due to increased heat reflection back to space.
- Nighttime transformation to permanent twilight in some regions during the days of a full moon.

Simulating the triple nexus of the Sun, Earth, and Moon means representing the kinetic and optical relationship between these three bodies in a way that allows us to understand how each one affects the other, particularly in terms of illumination, orbits, and lunar phases. To explain this simulation in a simplified way, let's imagine we want to model this relationship inside a hall or using a computer program.

First, we fix the Sun at a specific point as the center of light emission, as it is the primary source of energy and radiation in the system. In this model, the Sun is stationary because it represents the central gravity of the system and does not revolve around the Earth or the Moon; rather, the other bodies revolve around it.

Next, we place the Earth at an appropriate distance from the Sun, representing the average actual distance between them (about 150 million kilometers). The Earth revolves around the Sun in an elliptical orbit over a full year. However, in the simulation, the orbit can be represented circularly for easier visual understanding. The Earth itself also rotates on its axis once every 24 hours, which causes the alternation of day and night.

Now we come to the Moon, which is positioned in a smaller orbit around the Earth. The Moon completes one revolution around the Earth every approximately 27.3 days. During this cycle, the Moon's position changes relative to the Earth and the Sun, causing the angle at which sunlight falls on the lunar surface to change. This changes the Moon's apparent shape from Earth, a process known as the phases of the Moon.

When running the simulation, we observe three interconnected movements:

The turning of the Earth around the Sun, and of the Moon around Earth, And it through sideways reflection of sunlight on to moon which seeing at different as earth is in different shape at different stages in its orbit!

These phenomena can be clearly represented in the simulation by adding shadows and lines representing the paths of light and shadow between the three bodies.

Thus, simulating the triple nexus between the Sun, Earth, and Moon helps visualize how motion, light, angle, and position affect the natural phenomena we see from Earth's surface.

CONCLUSIONS

One of the most prominent similar projects is SCoPEx, which proposed spraying calcium carbonate into the stratosphere to reflect solar radiation, but it was halted for environmental safety reasons. Our proposed project departs from Earth's atmosphere and utilizes an inert astronomical body (the moon) in a sustainable manner. The primary challenge lies in the high cost and nuclear technologies involved, but these are not technically impossible. Furthermore, lunar glass could last for centuries without requiring maintenance.

- The moon could be transformed into a giant cosmic mirror to reduce solar heat and transform night into perpetual twilight.
- The reflectivity of lunar glass contributes to reducing solar radiation reaching Earth.
- The proposed technology is superior to limited-scale ground-based attempts such as balloons and carbonates.
- The project requires a detailed astronomical environmental study before implementation.

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