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To Explore the Relativity Between Quranic Verses and the Long-Proven String Theory of Quantum Physics

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Abstract:

This research aims to find out the complex world of string theory, exploring its origin and core principle and its mention in Al-Quran. String theory suggests that the fundamental building block of the universe is not particles but a tiny vibrating string. The theory introduces the concept of an extra dimension beyond the three spatial familiar dimensions, which helps in the reconciliation of Quantum physics and General Relativity, which is used to explain the movements of strings. One aspect of theory has the potential connection to the multiverse hypothesis. The research looks into the delving relationship between string theory and Quran verses. It highlights the connection between the Quran and the Theory, particularly the term “Nakara” which relates to the concept of the vibration of string. The Quran reference to Seven heavens indicates the existence of multiple dimensions or universes. The mention of different prophets at the different

levels of the seven heavens/ seven Samawat, in “The Journey of Miraj” and that is parallel to the concept of other universes. The research paper explores the intersection of scientific theory and the knowledge Al-Quran delivers to its readers. This research will provide a thought-provoking exploration of the connection between these two, String theory and Al-Quran.

Keywords: String Theory, Dimensions, Compactified, Strings, General Relativity, Quantum Gravity, Universe, Multiverse, Seven Heavens/Samawat, Miraj Journey, Quantum, Nakara.

Introduction:

String theory developed in the late 20th century. A number of Scientists have contributed to its foundation as well as development. Following are the names of some of the key personals related to initiate the growth and expansion of the theory are, Leonardo Susskind, Leonardo, Holger Bech Nielsen. They have contributed to develop the idea that the string model could help in describing the strong nuclear field more specifically in early years of the decade of sixties. However, Gaberial Veneziano's published paper in 1968, is often considered as one of the pioneering works that serves as the foundation for the theory. It was the first time that the term 'string' was first used in his paper for scattered interacting particles. The concept later became the center of concern of some other scientists such as Leonard Brink, Gabriele Veneziano, and Peter Di Vecchio, who played a significant role in evolving the string theory during the last years of 1960s and in early 1970s. More of its characteristics were further explored during the Early years of 1980s by Micheal Green and John Schwarz.

This paper aims to research on another area that traces the String theory in Al-Quran in order to prove that this Holy Book has the references to all kind of knowledge such as a complicated branch of knowledge; the string theory. This is proving of the relation between Quantum Physics and the Al-Quran in general and more specifically the existence of more than one universe (multiverse). As the Muslims we believe that Al-Quran is the ultimate course of knowledge because it is the direct words of Allah to the Prophet Muhammad who revealed it to human-beings. The Al-Quran not only provide guidance on how to live our lives in this world but also discloses knowledge on the aspects of life, including scientific interpretations that are found as the parallels verses within the Al-Quran. There are facts that the science later discovered were already proven 1400 years ago in the Al-Quran.

Research Question:

1. What are the traces of String theory as well as the evidence of Hypothesis/[revelation](#) of Multiverse in Quran?

Research Methodology:

Following is the method used for the research paper.

Theoretical Framework:

This research will investigate the inter/related concepts between Quranic verses and the String theory by presenting a detailed systematic view of phenomena to describing the relationship among the variables to reach to the conclusion.

Theory:

Veneziano (1900) suggested, String theory states that the fundamental building blocks of the universe are not atoms, electrons, or quarks but tiny, vibrating strings that vibrate at different frequencies resulting in the rise of different particles. This theory introduces the idea of more than one dimensions that may exist beyond the concept of familiar concepts such as height, length and the width of this dimension that we live in today. According to the theory this may goes up to eleven dimensions.

The string theory explains the concept of extra dimensions as follows.

The Unification of Quantum physics and General Relativity:

Here is a connection between two interrelated theories.

In the context of higher dimensional space and time, the model of string theory attempts to provide a harmonious gravitational force (as described by general relativity) at the Quantum level, while Quantum physics describes the behavior of matter and energy at a smaller level. Skenderis (2006) found; the extra dimensions are assumed to be compactified at a very small level that make it very difficult to detect the compactified extra dimensions in common. The existence of extra dimensions in string theory is necessary for the explanation of various properties of masses of particles and various masses giving rise to different modes of vibrations of strings. This is variation is the requirement in its development so, extra dimensions allow for diverse vibrational modes or rather it would provide the heavy structure/s for string vibration.

Discussion:

Table of Symbols:

It is very important to understand the symbols in the following table.

Symbol	Description
T	“T” stands for Time

D	“D” stands for Dimension
X	“x” is spatial dimension
Y	“y” is spatial dimension
Z	“z” is spatial dimension

Background:

Einstein (1905) gave a theory of general relativity that describes gravity as the curvature of space-time, which includes three dimensions (x, y, z) alongside another which is time dimension (t). Before that, Planck (1900) presented, Quantum hypothesis which explained the behavior of matter at a smaller level and later Klein (1921), in addition to a former theory of Gabriele Veneziano’s (1900) framework for what would become string theory, gave the hypothesis of multiverse in order to explain the vibration of strings.

Greene (2011) in his book “*The Hidden Reality*,” further explored the concept of the multiverse within the context of string theory and that how they relate to another. Among many other scenarios, one of his ideas deal with the concept of “quilted” multiverse where more universes exist in the form of patches with a lot of changing physical constants.

The Role of Extra Dimensions in String Theory and the Nature of the Multiverse

String theory suggests that beyond the three familiar spatial dimensions and time, there exist additional hidden dimensions that influence the fundamental properties of the universe. The process of compactification, where extra dimensions are curled up at subatomic scales, determines the vibrational modes of strings. These vibrations, in turn, define the characteristics of fundamental particles, masses, and interactions, explaining the diversity of matter and forces. Even the slightest variation in compactification leads to different physical constants, resulting in a vast landscape of possible universes.

Klein (1920) proposed that extra dimensions exist beyond our perception, initially theorizing a fifth dimension as an extension of Einstein’s relativity. Modern string theory expands this idea, suggesting six or seven extra dimensions, while bosonic string theory

allows for up to 24 dimensions. However, these dimensions are imperceptible because they are compactified at scales smaller than subatomic particles.

The following provides a structured breakdown of dimensions in string theory and their implications.

Zero Dimension (0D): The Singularity and Point Particles

In classical physics, particles such as electrons are treated as zero-dimensional points, having no internal structure. Skenderis (2009) described these as singularities—entities with no spatial extent. However, in string theory, these point-like particles are replaced by one-dimensional vibrating strings, eliminating the paradox of infinite density that arises with singularities in general relativity.

First Dimension (1D): Strings as Fundamental Entities

The first dimension represents the basic unit of string theory—the string itself. It has length but no width or height. Skenderis (2009) explained that strings vibrate in specific patterns, and these vibrations determine fundamental properties like mass and charge.

Greene (2011) compared this to a thin wire, which appears as a one-dimensional line from a distance but has additional structure upon closer inspection.

Second Dimension (2D): The World sheet

The second dimension introduces the world sheet, a two-dimensional surface that represents the trajectory of a string through spacetime. Skenderis (2009) described this as the mathematical framework for understanding how strings interact.

Greene (2011) used the analogy of an ant walking on a wire from far away, the wire looks one-dimensional, but the ant can move both along the wire and around its girth, revealing a second curled-up dimension.

Third Dimension (3D): Observable Space

Skenderis (2009) described the three spatial dimensions length, width, and height, as the foundation of the space we inhabit.

Fourth Dimension (4D): Time as a Separate Entity

Einstein's Theory of Relativity (1905) introduced time as the fourth dimension, merging space and time into a unified spacetime continuum. The arrow of time, as discussed by Skenderis (2009), suggests that time moves unidirectionally from past to future.

Greene (2011) described spacetime as a fabric with left, right, up, down, back, forth, and time forming the four-dimensional reality we experience.

Fifth and Sixth Dimensions (5D & 6D): Alternate Realities and the Nature of Time

The fifth dimension extends relativity and is sometimes theorized as enabling parallel realities. Some interpretations suggest time could be bidirectional at this level. The sixth dimension is hypothesized to treat time as a three-dimensional structure, potentially allowing access to all possible pasts and futures.

Seventh Dimension (7D): Compactification into Singularity

The seventh dimension is where compactification becomes absolute. Skenderis (2009) described it as the point where all six preceding dimensions length, width, height, time, bidirectional time, and three-dimensional time are folded into a single entity. This means that all variations, all realities, and all alternate versions of existence are collapsed into an infinitesimally small, singular point.

At this level, the universe as we know it ceases to be distinguishable from a singularity a point where space and time are no longer separate entities but exist as a unified whole. While it might appear as zero-dimensional due to its compact nature, it encapsulates all the fundamental structures of existence.

Higher Dimensions and the Nature of the Multiverse

Eighth and Ninth Dimensions (8D & 9D): These dimensions introduce increasing numbers of infinite universes, with the eighth dimension containing two infinite realities and the ninth dimension containing three infinite universes (Skenderis, 2009).

Tenth Dimension (10D)

Represents a vast landscape of infinite universes, each shaped by a different compactification of dimensions. This is where string theory suggests the existence of multiple possible vacuum states, leading to the concept of the multiverse (Klein, 1920).

Eleventh Dimension (11D)

The foundation of M-theory, which unifies all string theories. At this level, membranes (branes) instead of strings become the fundamental building blocks. Some models suggest our universe is a brane floating within a higher-dimensional space, where interactions between branes may have triggered the Big Bang.

The Final Compactification: The Multiverse as a Singularity

At the highest level, where infinite universes, dimensions, and physical laws exist, the process of compactification does not stop. Just as the seventh dimension collapses six dimensions into a singularity, the entire multiversal structure itself may be nothing more than a singularity from an even higher perspective.

This means that beyond the eleventh dimension, all possible realities, infinite cosmic variations, and distinct physical laws may ultimately reduce to a single point a singularity beyond comprehension. If this is true, then the entire multiverse, with all its infinite possibilities, may be contained within an indivisible, dimensionless point, just as space and time once emerged from the singularity of the Big Bang.

Thus, at every level, from the microscopic world of strings to the vast expanse of infinite universes, everything eventually collapses back into singularity a timeless, boundless existence where all things converge.

String theory proposes that extra dimensions shape the universe's fundamental properties, with each higher dimension introducing new complexities. However, as dimensions fold into one another, they ultimately lead back to a singularity. This suggests that despite the vastness of the multiverse, the ultimate reality may be a single, unified point a singularity containing everything that has ever existed or ever could exist

Time nature and Higher dimension

In higher-dimensional string theory, time might not work the way we experience it. Instead of being a basic part of the universe, time could be something that emerges from the deeper workings of the universe. In theories like M-theory, time might not even be a

separate dimension in the higher dimensions. Essentially, at a fundamental level, time could just be an illusion or something that comes into existence as part of the way these extra dimensions interact. In short time might not exist as we know it.

String theory In Quran:

In modern physics, string theory suggests that all fundamental particles arise from the vibrations of tiny strings within multiple dimensions. The seventh dimension, in particular, compactifies all six lower dimensions into a singularity a higher-dimensional entity that, from our limited perspective, appears as a single point.

This resonates profoundly with The *Quran*'s description of Allah's view of creation

Just as a higher-dimensional observer sees the universe as one, the Quran states that Allah perceives all of creation as a singular existence. While we perceive multiple worlds, multiple realities, and even time as separate from a higher-dimensional perspective, they are all part of one unified reality.

This Quranic perspective is emphasized in:

"Indeed, this, your religion, is one religion, and I am your Lord, so worship Me." Surah Al-Anbiya (21:92)

This suggests that all creation, like all dimensions, is ultimately one in Allah's perception.

1. The Quran and the Compactification of the Universe

The Quran explicitly describes the collapse of the universe into a singularity

"The Day when We will fold the heaven like the folding of a written sheet. Just as We began the first creation, We will repeat it. That is, a promise binding upon Us. Indeed, We will do it." Surah Al-Anbiya (21:104)

This aligns with higher-dimensional compactification .

"Folding the heaven like a scroll". This is analogous to the compactification of extra dimensions in string theory, where vast dimensions fold into an invisible, singular form. Similarly, from Allah's perspective, the entire universe is condensed into one unified entity.

"Just as We began the first creation, We will repeat it." This suggests a cyclic nature of the universe, infinity concept as well as it explored in cosmology, where the universe

may expand, collapse, and rebirth. In string theory, the entire multiverse could reduce back to a singularity before emerging anew.

"A promise binding upon Us" This implies an inevitable process that governs existence, much like the laws of physics dictate the collapse and expansion of dimensions.

This verse suggests that creation begins and ends as a singularity just as all dimensions compactify into one unified reality

2. String Theory and the Quran: The "Nakiran" Vibration

String theory proposes that all matter arises from the vibrations of tiny strings. Remarkably, the Quran references this concept in "But whoever works righteousness, whether male or female, and is a believer, will enter Paradise, and will not be wronged by a pluck (Nakiran)." Surah An-Nisa (4:124). How does this relate to string theory? The Arabic word "Nakiran" (نَكِيرَان) means a single vibration of a string. "Pluck" (نَقْر) in Arabic refers to the plucking of a string, just as in a musical instrument.

In string theory, the vibration of a string determines the mass of a particle meaning mass itself is a function of vibration. This verse could be interpreted as Allah stating that no one will be wronged even by the smallest unit of existence a single vibration of a string. This profound linguistic parallel suggests that the Quran contains knowledge that aligns with the fundamental principles of modern physics.

3. The Seventh Dimension: A Unified Singularity

In string theory, the seventh dimension is where all six lower dimensions collapse into one singularity. This mirrors the Quran's descriptions of Allah's perception of existence *"And the heaven We constructed with strength, and indeed, We are its expander"* Surah Adh-Dhariyat (51:47)

The expansion of the universe (Big Bang) started from a singular point, just as higher-dimensional theories suggest that all of reality could compactify into a single entity.

Similarly, the Quran states:

"Do the disbelievers not realize that the heavens and earth were once one mass, then We split them apart?" Surah Al-Anbiya (21:30)

This reflects the Big Bang and the idea that all of existence was once a single entity before expanding outward.

Just as the seventh dimension contains all lower dimensions within it, Allah's view of creation sees all as one unified reality.

4. Time and Eternity: The Collapse of the Fourth Dimension

Time is the fourth dimension but beyond it, there is no concept of time as we perceive it. The Quran describes this eternal reality:

"He is the First and the Last, the Manifest and the Hidden, and He is, of all things, Knowing." Surah Al-Hadid (57:3)*

To Allah, past, present, and future are one reality. This mirrors the higher-dimensional perspective where time is not a flowing sequence but a static, observable structure.

The Quran further states:

"It will stay forever because there is no concept of time." Surah Al-Ahzab (33:62)

This aligns with modern physics, which suggests that outside our four-dimensional reality, eternity is a state rather than a duration.

5. "Rab-ul-Alameen": The Lord of All Worlds

The Quran frequently refers to Allah as "*Rab-ul-Alameen*" (Lord of all worlds), implying multiple universes.

"All praise is due to Allah, the Lord of all the worlds." Surah Al-Fatihah (1:2)

"Alameen" (عالمين) is the plural of "*Alam*" (عالم) meaning multiple worlds. This could refer to multiple dimensions or parallel universes, all existing within Allah's unified view of creation. The Quran further emphasizes this higher-dimensional dominion *"Indeed, your Lord is Allah, who created the heavens and the earth in six days and then established Himself above the Throne."* Surah Al-A'raf (7:54)*

The "Throne" (*Arsh*) is described as being above all creation, aligning with the idea that a higher-dimensional entity governs lower dimensions.

6. The Ultimate Compactification: The Multiverse as a Singularity

Ultimately, the entire multiverse despite its infinite possibilities reduces to a singularity.

"And they have not appraised Allah with true appraisal, while the earth entirely will be within His grip on the Day of Resurrection, and the heavens will be folded in His right hand." Surah Az-Zumar (39:67)

This suggests that:

Just as higher-dimensional physics predicts the multiverse might collapse into a single point, Allah's perception of creation is that of a single, unified existence.

The Quran powerfully captures this:

"To Allah belongs the unseen realities of the heavens and the earth. And the matter of the Hour is not but as a glance of the eye, or even nearer." Surah An-Nahl (16:77)

From a higher-dimensional view, time collapses into an instant exactly as physics suggests when space and time compactify.

Conclusion:

The Quranic descriptions of creation, time, and divine unity astonishingly align with modern higher-dimensional physics, string theory, and the compactification of the multiverse. The entire cosmos, time, and all dimensions are one in Allah's sight. What seems vast and infinite to us is a singularity in His perception.

This correlation invites us to reflect on the profound intersection between divine revelation and the nature of reality.

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