

## Debating Stephen Hawking's Thought on Creation of Universe: A Qur'anic Scientific Interpretation Perspective

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**Abstract:** Stephen Hawking's theory "M" posits that the universe was formed without the assistance of God. This paper elaborates the qur'anic position on Hawking's idea by analyzing the qur'anic scientific interpretation of universe creation. Therefore, the literature review was utilized to collect as much data as feasible, which was then evaluated using the descriptive-analytical method. The findings of this study indicate that Stephen Hawking's "M" hypothesis has three faults, which constitute a scientific critique of the interpretation of Qur'anic texts relating to the earth and sky. The three faults are: 1) Earth and sky were not created without God's intervention, as Hawking claimed, but by the will and strength of Allah. This finding is stated in the interpretation of Surah Al-Anbiya' verse 30, Al-Fushshilat verse 10, and Al-A'raf verse 54. 2) Hawking's concept of creation is inappropriate since it is based on the rationalism of liberal thought. The natural creation process described in the Qur'an, scientifically proved by science, differs from Hawking's claim. 3) Hawking's idea of a mechanism for creating the heavens and the earth is not suitable with the scientific facts regarding them stated in the Qur'an's scientific interpretation.

**Keywords:** Al-Qur'an; Hawking; Universe Creation; Tafsir Ilmy

### Introduction

In the twentieth century, science and technology developed rapidly. Many people are competing to use their minds to understand all new knowledge. No exception, Islamic scientists also compete to uncover the mystery of divine revelation in the Qur'an and hadith. No less than 750 verses that explicitly describe things about science, almost one-eighth of the content of the verse admonish the believers to study the universe, think, use reasoning as well as

possible and make scientific activities an integral part. Inseparable from human life.<sup>1</sup>

Al-Ghozali stated that the origin of nature is nonexistent, which indicates that Allah created nature and it is not *qadim*. Nature is *qadim*, according to Al-Farabi and Ibn Sina, because Allah created it from the beginning. Ibn Rushd has another opinion that nature is made of essentially eternal things and forms, but divinity and the divine essence are not the same. Ibn Tufail, in contrast, thinks that nature is the result of God and is generated outside of time.<sup>2</sup>

On the other hand, Gusti Afifah, Syahrial Ayub, and Hairunnisa Sahidu concluded that all of the concepts found by scientists about the universe were recorded and conveyed - Al-Qur'an.<sup>3</sup> Numerous studies indicate that the Al-Quran advocated the universe hypothesis long before it was established by modern science.<sup>4</sup> According to Zaini, In the Qur'an, cosmology is depicted as Allah constructing the seven heavens and arranging them atop the other in perfect and flawless order, each orbiting the earth in its way. Because the universe and its operations are sometimes described as verses from Allah, studying and researching the cosmos or the universe might also involve reading these verses. The Qur'an can detail, describe, and explain its verses, typically outlined by seeing the universe.<sup>5</sup>

In the modern era, Stephen Hawking, who is an adherent of metaphysical naturalism, has believed that the universe happened because of the will of nature itself, and he did not believe in the role of God in the formation of the universe.<sup>6</sup> Stephen Hawking was inducted into the hall of the world's most outstanding scientists, along with Galileo, Newton, and Einstein. He was a warrior battling a degenerative sickness that robbed him of his ability to move. Through his research, Hawking made significant contributions to our understanding of the Universe's functioning.<sup>7</sup>

<sup>1</sup> Mohammad Nor Ichwan, *Memasuki Dunia Al-Qur'an* (Semarang: Lubuk Raya, 2001), 57.

<sup>2</sup> Siti Maunah, "Hakikat Alam Semesta Menurut Filsuf Islam," *Madaniyah* 9, no. 1 (January 31, 2019): 1–21.

<sup>3</sup> Gusti Afifah, Syahrial Ayub, and Hairunnisa Sahidu, "Konsep Alam Semesta Dalam Perspektif Al-Quran Dan Sains," *Jurnal Pendidikan, Sains, Geologi, Dan Geofisika (GeoScienceEd Journal)* 1, no. 1 (2020), <https://doi.org/10.29303/goescienceedu.v1i1.36>.

<sup>4</sup> Theo Jaka Prakoso, "Al-Quran Dan Kosmologi," *MAGHZA: Jurnal Ilmu Al-Qur'an Dan Tafsir* 5, no. 1 (December 24, 2020): 17–35, <https://doi.org/10.24090/maghza.v5i1.3300>.

<sup>5</sup> Muhammad Zaini, "Alam Semesta Menurut Al-Qur'an," *TAFSE: Journal of Qur'anic Studies* 3, no. 1 (June 30, 2018): 30–46, <https://doi.org/10.22373/tafse.v2i1.8073>.

<sup>6</sup> Nanda Pramesti Nariswari et al., "Konsep Penciptaan Alam Semesta Menurut Pandangan Ibnu Rusyd dan Stephan Hawking dan Kaitannya Terhadap Kosmologi," *Zawiyah: Jurnal Pemikiran Islam* 6, no. 2 (December 28, 2020): 272–94, <https://doi.org/10.31332/zjpi.v6i2.1612>.

<sup>7</sup> Maceti Huemerson et al., "Stephen Hawking: Black Holes and Other Contributions from One of the Greatest Scientists of Our Time," *International Journal of Advanced Engineering Research and Science* 5, no. 5 (2018): 63, <https://doi.org/10.22161/ijaers.5.5.8>.

Unfortunately, no studies have criticized Hawking's findings from the perspective of al-Qur'an science interpretation. In his study, Halwani did not compare the difference between the concept of the universe according to Hawking and according to the Qur'an. Instead, he emphasized that the Qur'an needs to be interpreted according to the context so that it can answer modern findings.<sup>8</sup> Nariswari and others just described Hawking's view of the concept of the creation of the universe without trying to discuss it or contradict it with the opinions of others in their studies.<sup>9</sup> When Prakoso presented the qur'anic view of cosmology, he did not discuss Hawking's opinion. However, he only stated that Al-Quran preached the universe's theory long before modern science discovered it in a study.<sup>10</sup>

Therefore, this study will close the academic gap by discussing Hawking's views on the creation of the universe by contrasting and comparing them with the verses of the Qur'an. The method used to analyze the qur'anic verses is the method of scientific interpretation which has been used since the 11<sup>th</sup>-12<sup>th</sup> centuries.<sup>11</sup> The integration of the Qur'an and science provides the epistemological foundation for scientific Qur'anic exegesis.<sup>12</sup> The aim is to find a scientific view of the Qur'an regarding Hawking's views on the creation of the universe.

## Result and Discussion

### *Stephen Hawking's Biography*

Stephen William Hawking, a British physicist and cosmologist, was one of the most distinguished scientists of the 20th century. He was born on March 14, 1918. He joined Oxford in 1959 intending to study mathematics, but due to the university's inability to provide the program, he elected to study physics, graduating three years later. Quantum physics, thermodynamics, and relativity were among his primary interests. He became a researcher and later a lecturer at Gonville and Caius College after earning his PhD at Trinity Hall in Cambridge in 1966. After leaving the Institute of Astronomy in 1973, Stephen joined the

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<sup>8</sup> Muhamad Halwani, "Multisemesta Dalam Perspektif Al-Qur'an (Studi Komparatif Al-Qur'an Terhadap M-Theory Stephen Hawking)," *Syariat: Jurnal Studi Al-Qur'an Dan Hukum* 1, no. 02 (November 1, 2015): 246, <https://doi.org/10.32699/syariat.v1i02.1112>.

<sup>9</sup> Nariswari et al., "Konsep Penciptaan Alam Semesta Menurut Pandangan Ibnu Rusyd dan Stephan Hawking dan Kaitannya Terhadap Kosmologi," 293.

<sup>10</sup> Prakoso, "Al-Quran Dan Kosmologi."

<sup>11</sup> Ahmad Tha'qif Bin Ismail and Aqdi Rofiq Asnawi, "Scientific Approach in Quranic Exegesis: The Emergence and Issues," *Journal of Contemporary Islamic Studies (JCIS)* 7, no. 1 (2021): 63.

<sup>12</sup> Aqdi Rofiq Asnawi, Syukron Affani, and Zaenatul Hakamah, "Scientific Qur'anic Exegesis in Indonesia," *Australian Journal of Islamic Studies* 6, no. 4 (December 7, 2021): 41.

Department of Applied Mathematics and Theoretical Physics, having previously held the position of Mathematics professor at the University of Cambridge, the only chair held by anyone other than Sir Isaac Newton and Paul Dirac.<sup>13</sup>

In 1982, Stephen Hawking began writing his book “A Brief History Of Time”, published by Bantam Books New York. The book broke the New York Times bestselling record and was on the bestseller list for 147 weeks in London; it was a bestseller for 237 weeks, translated into 40 languages, and sold more than 10 million prints worldwide.<sup>14</sup>

Stephen Hawking is most well-known for his contributions to quantum physics, particularly his cosmological, quantum gravity, black hole, and hawking radiation theories. His scientific accomplishments are a continuation of Newton’s and Einstein’s physics. Stephen Hawking researched the fundamental laws that govern the cosmos (law of nature). Together with Roger Penrose, he demonstrated that Einstein’s general theory of relativity, space, and time began with the Big Bang and concluded with a black hole. Thus, it demonstrates that scientific rules tightly prescribed how the universe began.<sup>15</sup>

### ***Hawking’s Theory***

Hawking’s concept of nature answers the question of the structure and direction of the development of cosmic reality by combining the theory of relativity (Einstein) and the theory of quantum mechanics. The theory of relativity leads to a study of the hypothesis that the universe’s beginning was in the form of a big bang (singularity). In contrast, the theory of quantum mechanics leads to the hypothesis of the decay of the universe.<sup>16</sup>

Hawking employs a rational method, which is also a scientific approach, in establishing modern physics’ thought.<sup>17</sup> Hawking proposed the M theory, which implies that the current universe is not the only one. Indeed, M-Theory predicts the emergence of several universes from nothing. According to Stephen Hawking, the universe’s beginning was a quantum event. In quantum theory, the universe has no prior history; nevertheless, there are numerous universes, each

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<sup>13</sup> Huemerson et al., “Stephen Hawking,” 60.

<sup>14</sup> Stephen Hawking, *My Brief History* (New York: Bantam Books, 2013), 72.

<sup>15</sup> Syamsuar Hamka, “Studi Kritis Pemikiran Fisika Modern Stephen Hawking Menurut Filsafat Pendidikan Islam,” *Tawazun: Jurnal Pendidikan Islam* 12, no. 1 (June 29, 2019): 5, <https://doi.org/10.32832/tawazun.v12i1.1895>.

<sup>16</sup> Stephen Hawking, *Rinayat Sang Kala: Dari Dentuman Besar Hingga Lubang Hitam*, trans. A. Hadyana Pudjaatmaka, 4th ed. (Jakarta: Pustaka Grafiti, 1995), 125.

<sup>17</sup> Hamka, “Studi Kritis Pemikiran Fisika Modern Stephen Hawking Menurut Filsafat Pendidikan Islam,” 4.

with its own physical laws and history. All of these universes arise spontaneously, beginning in any way possible.<sup>18</sup>

Theory M is a fundamental physics theory that has been proposed as a candidate for the theory of everything. M-theory is a collection of diverse hypotheses, each of which is an extension of observations made in a particular spectrum of physical settings. In simple terms, M-Theory is a theory or model that encapsulates and encompasses all previous physics theories (from Plato to Newton's classical theories to modern quantum theories), the ultimate theory or model for explaining the entire universe, a theory or model for everything ("the ultimate theory of everything"), and a theory or model that encompasses all of the universe's forces (gravity, electromagnetic force, strong nuclear force, and weak nuclear force).<sup>19</sup>

However, some opinions do not agree with this theory. Michio Kaku stated that The theory that is wacky enough to be a unified field theory is string theory or M-theory, which has one of the most peculiar histories in physics. It was found by accident, applied to the incorrect problem, sent to oblivion, and then suddenly resurrected as the theory of everything. Ultimately, it will either be a "theory of everything" or "theory of nothing."<sup>20</sup> The author concludes from Hawking's theory that there is nothing that separates and distinguishes between religion and science. The essence of the universe's creation is because of Allah's will as the Creator, but Hawking does not believe in this.

### ***Al-Qur'an Justification Against Hawking's Theory***

#### **Concept of God**

Stephen Hawking considers that the emergence of the universe from quantum events and the birth of many universes with their own set of physical laws are conditions that nullify God's intervention in the creation of the universe. In his book *The Grand Design*, Hawking writes, "The creation of the universes did not require the intervention of a natural being or God. On the other hand, many universes arise naturally due to the laws of physics. The emergence of the universe is a prediction of science".<sup>21</sup>

Science reveals many of the laws of the universe and tells humans how the universe will develop. Hawking stated that God may have decreed those laws initially, but it seems that God allowed the universe to develop according to those

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<sup>18</sup> Stephen Hawking and Leonard Mlodinow, *The Grand Design: Rancang Agung*, trans. Zia Anshor (Gramedia Pustaka Utama, 2010), 143–46.

<sup>19</sup> Hawking and Mlodinow, 8.

<sup>20</sup> Michio Kaku, *Dunia Paralel* (Sesa Media, 2010), 197.

<sup>21</sup> Hawking and Mlodinow, *The Grand Design: Rancang Agung*, 30.

laws and is now no longer interfering in the universe. However, how did God choose the initial state of the universe? How can it fit? One possible answer is that the reason why God ordained his proper creation is beyond human comprehension. Nevertheless, if he started the universe in a way humans cannot understand, why did God allow the universe to develop according to laws that humans understand?<sup>22</sup> It became a big question for Hawking in his book, *A Brief History of Time*.

It is precisely from this that Allah commands humans to embellish and explore the purpose of the creation of the universe through the Qur'an. From this, it can be concluded that Islam means being invited to think. In foreign civilizations, especially the West, rational things are referred to as "Basic Beliefs". A collection of fundamental beliefs in the form of basic concepts is referred to as a "worldview" or perspective.<sup>23</sup> Whereas in Islam, the perspective of a Muslim must be based on good faith and strong faith.

It is moreover, proven by actions and behavior.<sup>24</sup> Because this is where someone's deeds will witness his faith, knowledge is no longer helpful if a human being loses the dimension of his faith. At the same time, the nature of knowledge relates to *taqarrub* to Allah.<sup>25</sup> This phenomenon is what western scientists do not have, so they also inspire that the existence of this universe is a coincidence without divine intervention. It can be deduced from the verse of the Qur'an that the earth was created from a smoky sky during four successive phases. In comparison, the formation of the sky of smoke in the form of seven layers of the sky is created in two phases Based on the word of Allah.<sup>26</sup>

وَأَنْتُمْ أَشَدُّ خَلْقًا أَمِ السَّمَاءِ بَنَّاهَا 27 رَفَعَ سَمَكَهَا فَسَوَّيْنَاهَا 28 وَأَعْيَشَ لَيْلَهَا وَأَخْرَجَ ضُحَاهَا 29  
وَالْأَرْضَ بَعْدَ ذَلِكَ دَحَاهَا 30 أَخْرَجَ مِنْهَا مَاءَهَا وَمَرْعَاهَا 31 وَالْجِبَالَ أَرْسَلْنَا 32 مَتَاعًا لَكُمْ وَ  
لِأَنْعِمِكُمْ 33

These verses of the Qur'an come as a rebuttal to those who deny the existence of the Day of Resurrection. Then Allah (SWT) asked them, "Was your creation more complex than the sky we created with a vast and astonishing amount? In it, there is an accurate system, a very disciplined movement, very regular in correlation, connection with mysterious forces, invisible rays that move

<sup>22</sup> Hawking, *Riwayat Sang Kala: Dari Dentuman Besar Hingga Lubang Hitam*, 116.

<sup>23</sup> Hamid Fahmy Zarkasyi, *Minhaj: Berislam, Dari Ritual Hingga Intelektual*, 1st ed. (Jakarta, Indonesia: Institute for the Study of Islamic Thought and Civilization (INSISTS), 2020), 197.

<sup>24</sup> Zarkasyi, 198.

<sup>25</sup> Hamid Fahmy Zarkasyi, "Metodologi Studi Islam," in *Rasional Tanpa Menjadi Liberal* (Jakarta, Indonesia: Institute for the Study of Islamic Thought and Civilization, 2021), 318.

<sup>26</sup> Zaghlūl al-Najjār, *Tafsir Ayatul Kauniyah Fil Qur'anul Karim*, vol. 1 (Cairo: Maktabah Shorouk Ad-Dauliyah, 2007), 88.

with the natural order, and the high speed of nature to tie the relationship between trillions of planets, stars, asteroids, moons, and comets. In the galaxy. Additionally, it connects millions of galaxies in the world's cosmic structure, which science can not quantify in terms of its dimensions and what lies above.<sup>27</sup>

The fact that the cosmos is vast about the creation of the heavens and the earth is not known to humans except in the mid-20th century or later when the astronomical theory was called the "big bang theory". This theory is the most widely accepted theory by astronomers and astrophysicists. However, the Qur'an has already demonstrated this for more than four hundred years, namely as stated in the word of Allah.<sup>28</sup>

أَوَلَمْ يَرِ الَّذِينَ كَفَرُوا أَنَّ السَّمَوَاتِ وَالْأَرْضَ كَانَتَا رَتْقًا فَفَتَقْنَاهُمَا ۖ وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ أَفَلَا يُؤْمِنُونَ 30

The Qur'an provides a global and universal description of this natural event. At the same time, the details are left to be used as research material by scientists and intellectuals who always think about the creation of the heavens and the earth. From the results of these studies, they began to find evidence in the mid-twentieth century. This result is the revelation of Allah, which was revealed to the Messenger of Allah a thousand and four hundred years ago.<sup>29</sup>

### Universal Natural Concept

According to Hawking, the universe was formed using a rational approach and science or Modern Physics thinking. A rational approach is an approach to reality with the help of reasoning and a combination of General Relativity Theory and Quantum Mechanics Theory, which later became Quantum Gravity Theory. Hawking can explain a model with only a few observations, with the help of a model of the various laws that apply in the universe, then model it mathematically. Thus, theories such as the Big Bang theory were born, the theory of everything, and the M Theory.<sup>30</sup> Meanwhile, according to Zaghul An-Najjar, the sky and the earth were initially solid and unified, sticky and clinging, then Allah SWT separated the two by His command.<sup>31</sup>

<sup>27</sup> al-Najjār, 1:88.

<sup>28</sup> Zaghul al-Najjār, *Tafsir Ayatul Kauniyah Fil Qur'anul Karim*, vol. 2 (Cairo: Maktabah Shorouk Ad-Dauliyah, 2007), 114.

<sup>29</sup> al-Najjār, 2:115.

<sup>30</sup> Nariswari et al., "Konsep Penciptaan Alam Semesta Menurut Pandangan Ibnu Rusyd dan Stephan Hawking dan Kaitannya Terhadap Kosmologi," 290.

<sup>31</sup> al-Najjār, *Tafsir Ayatul Kauniyah Fil Qur'anul Karim*, 2007, 2:115.

”وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ“ , the snippet of the verse relates to the creation of the universe. So the discussion of the Qur'an that can be applied is the interpretation of its relationship with “water” in forming life in this world. The word “*al-Ma*” can be interpreted as hydrogen, one of the particles that form life in this universe. Because in scientific terminology, water is a collection of chemical elements composed of two hydrogen atoms (H<sub>2</sub>) and one oxygen (O<sub>2</sub>).<sup>32</sup> When there is a big bang event, smoke and gas are formed, consisting of hydrogen and helium. The cloud or smoked gas in the Qur'an is known as the word “*dukhan*”, as stated in QS Fussilat verses 11-20. Then after being formed from clouds of gas, Allah established rules and laws in the universe, such as orbital lines and other rules that may differ in each universe.<sup>33</sup>

### **The Concept of the Creation Mechanism of the Universe**

According to Stephen Hawking's cosmological theory, the mechanism for the creation of the universe is based on M-Theory, which states that the universe at the beginning of time was small enough to be governed by general relativity and quantum theory and that there were effectively four spatial dimensions but no time dimension. When analysing the “beginning” of the universe, we must consider a condition or time that we know does not exist..

The universe is zero in size, meaning that the universe has not yet begun to form; it is still in the form of smoke or fog. Then there was a big explosion in the universe, and the temperature was scorching. Temperatures drop with an estimated heat of 10 billion degrees solar temperature or 1,000 times the temperature of the sun's core. When the universe experienced this hot temperature, the atoms were thrown and moved quickly to release them from the attractive force. Then the atoms spread widely in space to form planets. Then the temperature cools down after the explosion, the universe expands, and the neighboring atoms will attract each other and start building planets. Most of the universe contains photons, electrons, and neutrinos. Planets began to form from these physicochemical reactions, one of which is the earth where humans live. Earth was initially very hot and had no atmosphere. Humans could not live because the initial atmosphere did not contain oxygen but gases toxic to humans, such as hydrogen sulfide. In these circumstances, there is some primitive life that can develop, namely marine life. This process happens because of the change of atoms into macromolecules. These macromolecules are the forerunners of single-

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<sup>32</sup> Halwani, “Multisemesta Dalam Perspektif Al-Qur'an (Studi Komparatif Al-Qur'an Terhadap M-Theory Stephen Hawking),” 234.

<sup>33</sup> Halwani, 237–38.



celled organisms, the first life on earth. Then, high-level life forms such as reptiles, fish, mammals, and humans began to develop.<sup>34</sup>

There has been a process of expansion of the universe since it was first created until the time that Allah has determined. The beginning of the creation of the universe began with the primitive planets, namely the period of unification. Then there is the separation of the early primitive planets of the universe or the process of the big explosion, which is followed by the change of matter on the primitive planets of the universe when it is separated into smoke (smoke period). In this period, the earth and sky were created from the smoke of the universe. The certainty of the universe's return to a primitive planet like the beginning of the universe was formed. Then there is the certainty of the second significant explosion / second separation, namely the Day of Judgment. 8. The creation of the earth again beside the one we live in now, the sky other than the place we shelter now, and the beginning of the journey hereafter.<sup>35</sup>

## Conclusion

Stephen Hawking's hypothesis of the creation of the heavens and the earth contains three flaws compared to scientific interpretations of Qur'an verses. Notably, 1) the world and sky were not created without God's interference, as Hawking asserted, but with God's desire and might. 2) Hawking's notion of creation is inappropriate since it is based on the rationalism of liberal philosophy, even as it should be based on the scientifically proved process of creation provided in the Qur'an (science). 3) According to Hawking, the method for creating the heavens and the earth is inconsistent.

*Tafsir Ilmy*'s description of the universe aims to educate and convince humanity about how the universe was created and God's existence and omnipotence as the Creator. The universe's existence clearly indicates Allah's existence as the Creator God. Thus, by studying the universe, humanity will understand that Allah is the One who created it. While Hawking seeks to rationalize the universe's regularities, he also discusses how the cosmos was created through physics, resulting in various laws and theories that are rationally accepted. There is no disagreement regarding how the universe was created; the achievement of science cannot be isolated from the existence of natural rules created by Allah that arouse people's curiosity and prompt them to consider how this cosmos was created and began.

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<sup>34</sup> Stephen Hawking, *A Brief History of Time* (London: Transworld Publishers, 1998), 111–15.

<sup>35</sup> al-Najjār, *Tafsir Ayatul Kauniyah Fil Qur'anul Karim*, 2007, 2:114.

It is crucial to do more research to respond to scientific and technological advances from the perspective of the Qur'an.

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