

The correlation of islamic thought with relativity and cosmology

Nadiatul Mardiyah^{a,1,*}, Salis Raidalliani^{b,2}, Rizal Rizqi Al-Munir^{c,3}, Muhajir Muhajir^{d,4},
Mohamad Syahreza Pahlevi^{e,5}

^{a,b,c,d,*} Jurusan Fisika, UIN Sultan Maulana Hasanuddin Banten; ^eIstanbul Sabahattin Zaim University, Turkey

¹211720032.nadiatul@uinbanten.ac.id; ²211720041.salis@uinbanten.ac.id;

³3211720052.rizal@uinbanten.ac.id; ⁴muhajir@uinbanten.ac.id; ⁵mohsyahlevi@gmail.com

*Correspondent Author

ARTICLE INFO

Article history

Received:
10-09-2023
Revised:
11-10-2023
Accepted:
26-11-2023

Keywords

Cosmology;
Relativity;
Islamic.

ABSTRACT

This research explores the correlation between Islamic principles and the theory of relativity and cosmology. Through detailed analysis, this article identifies points of convergence between Islamic concepts, such as the concept of divinity, continuity of the universe, and order in creation, with Einstein's principles of relativity and modern understanding of cosmology. By discussing in depth the perspectives of religion and science, this research not only explains the similarities in concepts, but also explores the potential for synergy between religious wisdom and scientific thinking. It is hoped that the results of this research can contribute to interdisciplinary discussions regarding the role of religion in detailing the secrets of the universe and provide a basis for dialogue between Islam, relativity and cosmology.

This is an open-access article under the [CC-BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Introduction

Relativity and cosmology are two branches of science that study the universe and its relationship with space and time (Zaman, 2023). The theory of relativity was developed by Albert Einstein in the early 20th century. This theory argues that space and time are not absolute but rather relative to the observer. Cosmology is a branch of astronomy that studies the structure and evolution of the universe (Suriadi, 2022). In Islam, the universe is considered as the creation of Allah, with order and beauty. The Quran contains many verses describing the greatness and majesty of Allah, especially regarding the creation of the universe.

One intriguing concept in cosmology is the idea of a spherical universe. This concept suggests that our universe is like an expanding balloon (Purnomo, 2022). The farther we look, the farther galaxies appear. The concept of a balloon universe correlates with Islamic teachings. Firstly, it aligns with the Islamic doctrine (Nurul Umah Fijanati, Hafidz, Sukadi, 2023) of the greatness and majesty of Allah. An expanding universe indicates Allah as the all-powerful Creator (Kholis & Yunita, 2023). Secondly, it is consistent with Islamic teachings about the order of the universe. The universe expands in an orderly pattern, indicating that Allah is the most wise Creator.

The correlation between Islam, relativity, and cosmology is an interesting and deep area of research in modern scientific discourse (Hartatiningsih, 2022). Islam, as a

monotheistic religion with strong historical roots in human civilization, influences the worldview of its followers towards the universe and physical reality (Jatmiko Wibisono, Hafidz, Iffat Abdul Ghalib, 2023). On the other hand, Albert Einstein's theory of relativity has changed our paradigm in understanding space and time in physics, with profound implications for cosmology, or our understanding of the universe itself (Robbaniyah, 2022). Studying the relationship between Islamic worldview and the theory of relativity opens a window for a deeper understanding of how religious beliefs can coexist with scientific knowledge about the universe (Ardianta, 2022). In this context, we can also explore how religious perspectives contribute to our understanding of a larger reality, including the concept of a balloon universe and other worlds (Julkifli, 2022). This article will attempt to delve into the interaction between Islam, relativity, and cosmology, and how this correlation can inspire further discussions about the universe and the reality surrounding it.

In Islam, the universe is considered as the creation of Allah with profound meaning and purpose. The universe is seen as a "balloon" encompassing everything, including planets, stars, and life on Earth (Agustina, Anisa Rachma; Ifadah, Luluk; Muanayah, 2022). The concept of an afterlife is also an integral part of the understanding of Muslims. In the Quran, Allah describes the afterlife and His justice towards humanity. There is a belief that after death, humans will enter another world often referred to as the "hereafter" or "barzakh."

Overall, the correlation between Islam and relativity, as well as cosmology of the balloon universe and other worlds, is about how religious understanding and scientific knowledge can interact and complement each other. Although modern science allows us to understand the universe and its laws, Islam enriches our understanding of the purpose of creation and life after death. By studying both, we can take a holistic and comprehensive view to find meaning and purpose in our lives in this world and in the coming barzakh.

Method

The research type in this article utilizes a case study approach (Syaiful Anam, 2023), delving deeply into one or a few limited cases, providing profound insights into specific phenomena. The research method employed in this article is the literature study method, also known as library research. This method involves collecting data by comprehending and studying theories from various literature sources related to the discussed topic.

Results and Discussion

Alam Semesta Balon

As we know, the universe is filled with various clusters of galaxies, with each cluster averaging around 100 billion stars and located millions of light-years away from our Earth. One of the scientists who delved into the study of the universe was Edwin P. Hubble, who worked at the Mount Wilson Observatory in California, United States. In his research in 1925, he discovered that these galaxies were not only stationary but also moving away from Earth. The farther a galaxy is from Earth, the faster its movement, with some reaching speeds of up to a hundred thousand kilometers per second (about a third of the speed of light). Initially considered an error, over time, this discovery was accepted by many scientists, and eventually, Hubble proposed the theory known as "The Expanding Universe."

According to this theory, the universe is similar to a balloon or a rubber bubble constantly expanding in all directions, much like points on the surface of a balloon moving away from each other as the balloon enlarges. Consequently, objects in space also move away from each other as the universe continues to expand. Therefore, the sky we observe

today is actually expanding and becoming larger in all directions at an enormous speed. This concept can be related to the Quranic verses regarding the creation of the universe, Meaning: "Do they not look at the camel, how it is created? And the sky, how it is raised?" (Quran, Al-Ghashiyah: 17-18).

Earth is surrounded by space or the sky, moving in such a way perpendicular to the entire surface of the Earth. As the Earth is round, it means that the sky surrounding it must expand in all directions. Thus, the statement of Allah in Surah Adh-Dharyyat verse 47 reinforces the reference to the creation of the universe in Surah Al-Ghashiyah verses 17-18, where Surah Adh-Dharyyat verse 47 states, Meaning: "And the heaven We constructed with strength, and indeed, We are [its] expander." (Quran, Adh-Dharyyat: 47).

This verse implies that the cosmos is the unlimited power of Allah, indicating that the space in the universe is expanding. This expansion aligns with the will and laws set by Allah in this universe. It means that the universe or cosmos is still in a state of expansion, and this statement from the Quran has now been validated by astronomers and cosmologists. In their observations, these experts have witnessed the expansion of the cosmos in forms that make up the universe. The universe encompasses both the microcosm and the macrocosm, where the microcosm consists of objects with extremely small sizes, such as atoms, electrons, cells, amoebas, and so on. Meanwhile, the macrocosm includes objects with extremely large sizes, such as stars, planets, and galaxies.

Dunia Lain

The concept of alternate dimensions is a topic that has been extensively explored by scientists, yet the idea of dimensions beyond the three spatial dimensions we experience in everyday life remains a subject of debate and speculation (Nashihin, 2019). Some scientists believe that there might be additional dimensions beyond the three spatial dimensions we experience, while others argue that there is no evidence supporting this notion. One of the most well-known theories suggesting the existence of additional dimensions is the string theory, which proposes that there might be up to 11 dimensions (Ngabdul Shodikin et al., 2023). However, this theory is still highly speculative and has not been proven. Other scientists have proposed the existence of parallel universes or alternative realities, which can be considered as other dimensions. However, this idea is also highly speculative and remains unproven. Overall, the concept of alternate dimensions continues to be a topic of debate and speculation among scientists, and further research is needed to determine whether these dimensions exist or not.

The term "other worlds" in the scientific context can refer to several concepts and theories that still remain mysterious and not entirely solved by scientific knowledge. Here are some aspects related to other worlds according to science:

Kehidupan di galaksi lain

Life in other galaxies remains a mystery that scientists are attempting to unravel. Despite widespread belief in the existence of extraterrestrial life, no concrete evidence has been found to support this idea. The vastness of the universe makes the search for life challenging, even within our own solar system. However, scientists estimate that there are around 6 billion Earth-like planets in the Milky Way galaxy alone. The Milky Way is home to billions of stars and planets, and there are many other galaxies in the universe, each with its own stars and planets.

Humans cannot definitively confirm the existence of life in other galaxies. However, the possibility of life beyond Earth cannot be ruled out, and scientists continue to search for evidence of extraterrestrial life.

Panspermia

Panspermia is a theory suggesting that life on Earth might have originated from other planets that transported living organisms through meteorites or other celestial bodies. Although not proven, panspermia is not considered an implausible concept.

Dunia paralel

The concept of parallel worlds or the multiverse is a theory that supports the possibility of the existence of many universes. One concept that supports parallel worlds is the daughter universe.

Kisah penciptaan semesta dalam Alquran dan sains

The Quran narrates the story of the creation of the universe in six days, but several other verses in the Quran indicate that the duration of these days is not the same as a day and night on Earth. Furthermore, the Quran also mentions some scientific facts and natural phenomena that have later been proven true by scientific knowledge, such as the existence of fire at the bottom of the sea.

The mysteries of outer space still encompass many aspects that remain unsolved by scientific knowledge, such as how we know things we cannot see, like dark matter and dark energy, and the origin of the universe. The existence of another world or dimension beyond our world is an intriguing topic that has captured human interest for centuries (Robbaniyah et al., 2022). In Islam, the belief in another world or dimension is not explicitly mentioned in the Quran. However, there are several verses in the Quran that suggest the possibility of life on other planets. For example, in Surah Ash-Shura, verse 29, it is stated, Meaning: "And of His signs is the creation of the heavens and the earth and the living creatures that He has dispersed throughout them. And He, for gathering them when He wills, is competent." (Quran, Ash-Shura: 29)

Allah mentions His creation of the heavens and the earth and all living creatures within them. The term "dabbah" used in this verse is interpreted as living creatures that move or walk on the earth (Muchamad Chairudin, 2023), encompassing all living beings, including humans, animals, and possibly life beyond Earth. Moreover, Islam acknowledges the existence of the unseen or unknown, including the possibility of another world or dimension beyond our world. The Quran states that Allah knows everything, including the unseen. Therefore, it does not rule out the possibility of another world or dimension that exists beyond our current understanding.

Overall, although the Quran does not explicitly mention the existence of another world or dimension, it suggests the possibility of life on other planets and acknowledges the existence of the unseen. Thus, the belief in another world or dimension is not contradictory to Islamic teachings.

Conclusion

The correlation between relativity, Islam, and cosmology can occur within the context of the scientific understanding of the universe and related religious and philosophical concepts. Many thinkers, scientists, and theologians have attempted to reconcile the understanding of modern science with their religious beliefs. This may involve discussions about the creation of the universe, the origin of life, and the role of God in cosmology. However, interpretations and perspectives can vary depending on individual viewpoints and religious communities.

References

- Agustina, Anisa Rachma; Ifadah, Luluk; Muanayah, N. A. (2022). Habituasi Metode Lips Reading Pada Pembelajaran BTQ Bagi Santri Tunarungu di Pondok Pesantren Abata Temanggung. *AMORTI: Jurnal Studi Islam Interdisipliner*, 1(2), 92-102.
- Ardianta, S. (2022). Strategies for Utilizing Fiction Literature as an Antidote to Radical Islamic Understanding among Students of UIN KHAS Jember. *AMORTI: Jurnal Studi Islam Interdisipliner*, 1(2), 122-130.
- Bayong, THK. (2006). Ilmu Kebumihan dan Antariksa. Bandung, PT. Remaja Rosdakarya.
- Firdaus, Fersis. (2004). Alam Semesta. Yogyakarta: Insani Cita Press.
- Hartatiningsih, S. (2022). Fenomena Pantangan Menikah di Bulan Suro Prespektif Hukum Islam (Studi di Desa Sukomarto, Jumo, Temanggung). *AMORTI: Jurnal Studi Islam Interdisipliner*, 1(2), 68-78.
- Jatmiko Wibisono, Hafidz, Iffat Abdul Ghalib, H. N. (2023). Konsep Pemikiran Pembaharuan Muhammadiyah Bidang Pendidikan (Studi Pemikiran Muhammad Abduh). *Attractive : Innovative Education Journal*, 5(2), 514-522.
- Jamarudin. (2010). Konsep Alam Semesta Menurut Al- Quran. *Jurnal Ushuludin*. Vol 16, No 2
- Julkifli. (2022). Kedudukan dan Tugas Manusia dalam Perspektif Tafsir al-Qur'an Zubdatu At- Tafsir Karya Muhammad Sulaiman Abdullah Al Asyqar. *AMORTI: Jurnal Studi Islam Interdisipliner*, 1(2), 103-110.
- Kholis, N., & Yunita, V. (2023). Interpretation of Hadith-Sunnah from Schacht ' s Perspective : Multidisciplinary Study. *Amorti : Jurnal Studi Islam Interdisipliner*, 2(3), 148-159.
- Muchamad Chairudin, H. N. (2023). Nilai-Nilai Pendidikan Akhlak dalam Al-Quran Surat Yusuf Ayat 13-20 Kajian Tafsir Al Misbah Karya M. Quraish Shihab. *Attractive : Innovative Education Journal*, 5(2), 754-765.
- Nashihin, H. (2019). *Analisis Wacana Kebijakan Pendidikan (Konsep dan Implementasi)*. CV. Pilar Nusantara. <https://books.google.co.id/books?id=SXcqEAAAQBAJ>
- Nurjanah. (2013). Kosmologi dan Sains dalam Islam. *Jurnal Pemikiran Islam* Vol 18 No 1
- Ngabdul Shodikin, E., Sucipto, E., Wasith Achadi, M., Muzaky, F., Wahyu Laras Pertiwi, R., & Tinggi Ilmu Tarbiyah Madani Yogyakarta, S. (2023). *Implementation of the Sabaq, Sabqi, Manzil Methods in Improving the Quality of Memorizing Qur'an Learning in Class V Salafiyah Ula Islamic Center Bin Baz Bantul*. 1(1), 34-44. <https://journal.amorfati.id/index.php/postaxial>
- Nurul Umah Fijanati, Hafidz, Sukadi, H. N. (2023). Etika Dakwah Menurut Pandangan Habib Husein Jafar Al Hadar dalam Channel Youtube Jeda Nulis. *Attractive : Innovative Education Journal*, 4(1), 1-12.
- Pageasa. (2023). Relaticitas Einstein dan Pandangannya dalam Islam. *Jurnal Pendidikan Islam* Vol 4 No
- Purnomo, E. (2022). Kronik Moderasi Beragama Pesantren dan Etnis Tionghoa di Lasem Rembang Jawa Tengah. *AMORTI: Jurnal Studi Islam Interdisipliner*, 1(1), 20-31.
- Robbaniyah, Q. (2022). Eksplorasi Strategi Kontra Radikalisme pada Santri di Pondok Pesantren Islamic Center Bin Baz Yogyakarta. *AMORTI: Jurnal Studi Islam Interdisipliner*, X(X), 1-10.
- Robbaniyah, Q., Lina, R., Ustadz, S., Rofiq, A., Islami, F. Al, & Faiz, A. (2022). Kontribusi Pemikiran Abu Nida ` dalam Pengembangan Pendidikan Islam Pondok Pesantren di Indonesia. *JIPSI: Jurnal Ilmu Pendidikan Dan Sains Islam Interdisipliner*, 1(1), 23-34.
- Subagyo, B.A. (2005). Kompaktifikassi Teori String Heteroik Pada Manifold Calabi-Yau. *Jurnal Fisika dan Aplikasinya*. Vol 1, No 1
- Suriadi. (2022). Relasi Manajemen Keuangan dan Kualitas Lembaga Pendidikan Islam. *AMORTI: Jurnal Studi Islam Interdisipliner*, 1(2), 111-121.
- Syaiful Anam, H. N. (2023). *Metode Penelitian (Kualitatif, Kuantitatif, Eksperimen, dan R&D)*. PT GLOBAL TEKNOLOGI. https://www.google.co.id/books/edition/Metode_Penelitian_Kualitatif_Kuantitatif/w-bFEAAAQBAJ?hl=id&gbpv=0
- Zaman, W. K. (2023). Relasi Manajemen Masjid dan Kegiatan Keagamaan Islam: Studi di Masjid Dawamul Ijtihad Semarang. *AMORTI: Jurnal Studi Islam Interdisipliner*, 2(2), 61-70.