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CRITICISMS ON ONTOLOGICAL RELATIVISM OF  
MODERN SCIENCE BY SYED MUHAMMAD NAQUIB  
AL-ATTAS AND SEYYED HOSSEIN NASR

*Khalina Mohammed Khalili<sup>1</sup>*

**Abstract**

*Postmodern approaches to science introduce various methods, and result in multiple explanations and competing theories. This has exacerbated the science war in philosophy of science. The ongoing disputes known as ‘science war’ is a consequence of ontological disputes within the philosophical branch of metaphysics. Even though science had denied the importance of metaphysics in its practice, this paper argues that the recognition of philosophy specifically that in regards to metaphysics is a solution to the confusion arising from relativism of knowledge. As part of a preliminary attempt to confront this problem, this paper focuses on the criticisms of Syed Muhammad Naquib al-Attas and Seyyed Hossein Nasr on the ontology of modern science, which issues from the denial of metaphysics by modern scientists. Their views on ontology are part of both scholars’ Islamic philosophy of science. This is a qualitative research based on historical, doctrinal and comparative analysis of the primary works by the two scholars. The arguments are presented within the scope of philosophy of science based on the framework of the Islamic intellectual tradition. Thus, we find that a wider and transcendental epistemology is possible for understanding the multiple levels of reality subsumed within the metaphysics of Islam, which opens the door to reality and truth.*

**Keywords:** Ontology, philosophy of science, Islam, Tauhid transcendental reality

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<sup>1</sup> Khalina Mohammed Khalili received a Ph.D. in Islamic Philosophy from the Raja Zarith Sofiah-Centre for Advanced Studies in Islam, Science and Civilisation (RZS-CASIS) of Universiti Teknologi Malaysia. This paper was presented during a webinar on Islamic Philosophy entitled “Naradata Falsafah Islam” organized by the Malaysian Association for the Education of Philosophy and Thinking (PPFPM) & Organization of Selangor Public Library (PPAS) on 13-14 March 2021.

## Introduction

In this paper, we propose that there is a confluence of interest between Islamic philosophy of science and modern scientific findings with regard to ontology. To begin with, we admit that there is an ambiguity with regard to the ontology of natural things, since contemporary science promotes multiple interpretations of natural phenomena without attempting to clarify their true realities (i.e. ontology). The theory mud-slinging between the realist and anti-realist camps of philosophy of science creates a lacuna for considering the criterion (or multiple criteria) for evaluating the most authoritative ideas amongst the contenders of the current ‘science war.’<sup>2</sup> Thus we attempt to present the Islamic philosophy of science based on the framework of two contemporary Muslim scholars<sup>3</sup>, Syed Muhammad Naquib al-Attas (1930 - now) and Seyyed Hossein Nasr (1933- now) to arbitrate on their methodology and verification of knowledge. The framework of knowledge upon which both thinkers’ philosophies of science are grounded upon is the metaphysics of Islam or the science of Sufism (*taṣawwuf*). Islamic metaphysics is generally referred to as Sufism or *taṣawwuf*. However, as an exact science, Islamic metaphysics is the subject of philosophical Sufism, which according to al-Attas represents a unified system that “integrates reason and experience with their higher orders in the supra-rational and trans-empirical levels of human consciousness.”<sup>4</sup> The Sunni principles of the inner and outer

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<sup>2</sup> The science war that we refer to is perhaps an extension of “heated public debates” between realists in the 1990s, involving objectivists versus social constructionists. Ava Kofman, “Bruno Latour, the Post-Truth Philosopher, Mounts a Defense of Science” Oct. 25, 2018 (<https://nytimes.com/2018/10/25/magazine/bruno-latour-post-truth-philosopher-science.html>) (accessed 26/12/2018)

<sup>3</sup> The scholars whose thoughts are presented in this paper are prodigious scholars of our times. They have devoted their lives to preserving and upholding the Islamic intellectual tradition. Syed Muhammad Naquib al-Attas is a Malaysian thinker born in Bogor, Indonesia in 1930, and Seyyed Hossein Nasr is an American philosopher who was born in Tehran, Iran in 1933. As living scholars their influence on the public discourse on Islamic intellectualism appears to be growing steadily amongst the global Muslim population.

<sup>4</sup> Syed Muhammad Naquib al-Attas, *A Commentary on the Hujjat al-Siddiq of Nūr*

dimension originated with the teachings on the purification of the soul that can be traced back to the Prophet Muhammad. Nasr, in explaining Sunni and Shi'ah views simultaneously, defines Sufism as "the inner or esoteric dimension of Islam," which "beginning with the Shariah as the basis of religious life, seeks to take a further step toward that truth (*ḥaqīqah*), which is also the source of the Shariah. Sufism which is also called *tarīqah*, or the spiritual path, is the divinely ordained means of providing an answer to that ultimate question and leading us to the Truth or *ḥaqīqah* contained within that answer."<sup>5</sup> Al-Attas defines Sufism as the practice (*a'māl*) of the *sharī'ah* at the station (*maqām*) of excellence (*iḥsān*).<sup>6</sup>

Sufism, in modern times, is viewed in a negative light, and thus the term *tazkiyyat al-naḥs* or purification of the soul may be the preferred term for the masses.<sup>7</sup> In lieu of the historical instances of the negative portrayals of Sufism, al-Attas has described his metaphysical framework as 'positive' *taṣawwuf* in the book *The Positive Aspects of Tasawwuf: Preliminary Thoughts on an Islamic Philosophy of Science* (1981) which outlines an introduction to the Islamic philosophy of science. This clarifies the intent of the work as being opposed to any charlatan representations of *tasawwuf*. For

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*al-Dīn al-Rānīrī : Being an Exposition of the Salient Points of Distinction Between the Positions of the Theologians, the Philosophers, the Sufis and the Pseudo-Sufis on the Ontological Relationship between God and the World and Related Questions* (Kuala Lumpur: Ministry of Culture: 1986), 465.

<sup>5</sup> Seyyed Hossein Nasr, *The Garden of Truth: The Vision and Promise of Sufism, Islam's Mystical Tradition* (NY: Harper One: 2007), 5.

<sup>6</sup> Syed Muhammad Naquib al-Attas, *Islam and Secularism* (Kuala Lumpur: ABIM: 1978), 114 and Al-Attas, *Positive Aspects of Tasawwuf* (Kuala Lumpur: ASASI: 1981), 1.

<sup>7</sup> The focus on purification of the soul follows the descriptions of three levels of belief as explained in the famous Hadith of Jibrīl, in which the Prophet Muhammad explained that Islam is the outer manifestation of belief by a Muslim, *īmān* is the cognitive certainty of belief and *iḥsān* is the self-awareness of God's ever-pervasive existence. The Hadith is stated as follows: "Then he (the man) said, "Inform me about *iḥsān*." He (the Messenger of Allah) answered, "It is that you should serve Allah as though you could see Him, for though you cannot see Him yet (know that) He sees you."" (Sahih Muslim) Hadith #2 in *Imam Nawawi's Collection of Forty Hadith: Arabic Text, Translation and Notes* (Kuala Lumpur: Islamic Book Trust:1996), 3-5.

al-Attas, his metaphysics covers ibn Arabi's works of theoretical Sufism, as well as al-Ghazali's synthesis and many other philosophers, theologians and Sufis, as part of his worldview of Islam. Nasr's world-view, which he equates with Islamic philosophy, emerges from the elements of perennial philosophy.<sup>8</sup> The perennial elements are studied in 'metaphysic' of which Nasr asserts that there is only one kind for all diverse representations of metaphysics which he refers to as - *scientia sacra* pointing to the sacredness embodied within every entity. For Nasr, the perennial philosophy harkens back to *javidan khirād*, the Persian inheritance of ontological reality that became intertwined with Islamic philosophy after the Islamization of that advanced civilization. Both of their perspectives provide an overarching view on philosophy of science from the Islamic perspective. Thus, this paper provides an introduction to their philosophy of science by outlining their arguments against the ontological relativism of modern science.

### Methodology and Scope of Research

The method employed in this paper is based on qualitative research consisting of analyses on historical, doctrinal and comparative aspects of the scholars' primary works. The arguments presented cover the scope of philosophy of science following the framework of the Islamic intellectual tradition. Among the significant books that contributed to this research are *Islam and the Philosophy of Science* (1989), *Concept of Education in Islam* (1991), *The Positive Aspects of Tasawwuf* (1981) by Syed Muhammad Naquib al-Attas as well as *Religion and the Order of Nature* (1996), *Man and Nature: The Spiritual Crisis of Modern Man* (1968), *An Introduction to the Islamic Cosmological Doctrines* (1964) by Seyyed Hossein Nasr.<sup>9</sup>

<sup>8</sup> Nasr has used the word "World-view" to highlight his philosophical synthesis, for example see Seyyed Hossein Nasr, *Philosophy, Literature and Fine Arts* (Jeddah: Hodder and Stoughton/King Abdulaziz Universiti: 1982). Read more in Hahn et. al., *Library of Living Philosophers: Seyyed Hossein Nasr, L. E. Hahn, R. E. Auxier and L. W. Stone* (eds.) (Chicago: Open Court Press, 2001), 445-462.

<sup>9</sup> Syed Muhammad Naquib Al-Attas, *Islam and the Philosophy of Science* (Kuala Lumpur: ISTAC: 1989); Syed Muhammad Naquib Al-Attas, *The Concept of Education in Islam: A Framework for an Islamic Philosophy of Education* (Kuala Lumpur: ISTAC: 1999); Syed Muhammad Naquib al-Attas, *Positive Aspects of*



## Findings:

The criticisms put forth by al-Attas and Nasr are part of their attempts to re-invigorate the Islamic epistemological framework of research in the Islamic and intellectual sciences, which include modern science. For Nasr, his response to modern science is part of a larger battle against modernism, as articulated by the Traditionalists, the perennial philosophers that first emerged in the 19th century, whose ideas Nasr represents and continues to refine.<sup>10</sup> For al-Attas, his criticisms on modern science are focused on the impact of secularization on human language and reason which has been shaped by the secularization of ideas, culminating in the heterodoxy of modern science. Their ultimate criticism on modern science, pertains to ontology or the lack thereof in contemporary secular science discourse, due to the materialist presuppositions of science. We now proceed by defining the terminology treated in this paper.

## Philosophical origin of the term ‘ontology’

Ontology is a metaphysical study that is concerned with the status of existence of objects in both the seen and unseen world.<sup>11</sup> In simple words, ontology answers the question “what is there?” The origin of ontology can be traced to Parmenides and Plato’s school of Idealism. Since idealism itself is archaic and passé, ontology has been

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*Tasawwuf* (Kuala Lumpur: ASASI: 1981); Seyyed Hossein Nasr, *Man and Nature: The Spiritual Crisis of Modern Man* (London: Mandala: 1976), 2nd ed.; Seyyed Hossein Nasr, *Knowledge and the Sacred* (New York: State University Press: 1989), 120; Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrines* (Cambridge, MA: Harvard University Press: 1964).

<sup>10</sup> Rene Guenon, Titus Burkhardt and Martin Lings are known as the Traditionalists within this philosophical movement. For further discussion on the Traditionalists, refer to my Ph.D. thesis, Khalina Mohammed Khalili, *The Philosophy of Science in Islam from the Perspectives Syed Muhammad Naquib Al-Attas and Seyyed Hossein Nasr*, Ph.D. diss., (Kuala Lumpur: Universiti Teknologi Malaysia: 2020), 60-63 and Hahn et.al., *Philosophy of Seyyed Hossein Nasr*, 15, 19, 95-98.

<sup>11</sup> Bertrand Russell posits that Pythagoras (circa 570 BC) began the discussion of ontology through numbers, with his statement “all things are numbers” followed by Parmenides (circa 500 BC) and his discourse on being. See Bertrand Russell, *The History of Western Philosophy* (New York/London/Toronto/Sydney: Touchstone/Simon & Schuster:1945), 35.

disadvantaged during the post-classical periods when science emerges from the cradle of realism, materialism, essentialism and nominalism – in opposition to the school of idealism. It is no wonder then that not all philosophers agree on the definition of ontology. The Stanford Encyclopedia of Philosophy describes ontology as “the study of what there is.”<sup>12</sup> The encyclopedia immediately addresses the contemporary problem with ontology as follows:

Some contest this formulation of what ontology is, so it’s only a first approximation. Many classical philosophical problems are problems in ontology: the question whether or not there is a god, or the problem of the existence of universals, etc.. These are all problems in ontology in the sense that they deal with whether or not a certain thing, or more broadly entity, exists. But ontology is usually also taken to encompass problems about the most general features and relations of the entities which do exist.<sup>13</sup>

The disappearance of ontology from philosophical discourse in modern times is due to the skepticism from pre-modern skeptics such as Descartes and Kant. The latter may not be opposed directly to the possibility of knowing if things really do exist, but according to Paul O’Grady, Kant began an ‘abstainment’ movement:

Those philosophers who abstained from these debates did so from the position of skepticism, holding that we just don't have the cognitive wherewithal to decide any of these issues. Nevertheless, there was clear agreement on all sides that ontology had to do with portraying the nature of reality: telling it as it really is. Kant upset this consensus. His Copernican revolution introduced a new dimension to the debate. His suggestion was that ontology has to do with articulating the nature of reality *as known to human cognition*, not *as it is in itself*. In

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<sup>12</sup> Stanford Encyclopedia of Philosophy at <https://plato.stanford.edu/entries/logic-ontology/> (accessed 20/8/2021)

<sup>13</sup> Ibid.

common with skeptics he denies our access to a world in itself. However, unlike skeptics, he believes there is still a point to doing ontology and still an account to be given of the basic structures by which the world is revealed to us.<sup>14</sup>

In Islamic philosophy, ontology is synonymous with the question of existence (*wujūd*) which is dealt with within the science of metaphysics (theoretical sufism). This is opposed to modern philosophy and science, following the position of logical positivism which views metaphysics and anything metaphysical as pseudo-science. However, since Einstein introduced the theory of relativity as a new paradigm in physics, the question about ontology is pursued again and became the impetus to diverse opinions that include an instrumentalist view on ontology and metaphysics.<sup>15</sup>

Most commonly today, ontology is a term re-coined by research on Artificial Intelligence (AI) from the 1970s and 1980s, such that the AI pioneer Tom Gruber defines it thus:

In philosophy, one can talk about an ontology as a theory of the nature of existence (e.g. Aristotle's ontology offers primitive categories, such as substance and quality, which were presumed to account for All That Is). In computer and information science, ontology is a technical term denoting an artifact that is designed for a purpose, which is to enable the modelling of knowledge about some domain, real or imagined.<sup>16</sup>

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<sup>14</sup> Paul O'Grady, *Ontological relativism*, 1st ed. (UK:Acumen Publishing, 2002), 53-88.

Such an instrumentalist view has risen in prominence in the field of computer science. Due to the conventional nature of the English language and its adaptability for conceptualizations, early creators of artificial intelligence (AI) have resurrected the term 'ontology' in relation to knowledge system. O'Grady considers this new field, applied philosophy.

<sup>15</sup> Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/entries/logic-ontology/>

<sup>16</sup> Roe, Charles, "A Short History of Ontology: It's Not Just a Matter of Philosophy Anymore, June 7, 2012. <https://www.dataversity.net/a-short-history-of-ontology-its-not-just-a-matter-of-philosophy-anymore/#>, 1

As we circumnavigate the history of the word ‘ontology’, it is clear that it has evolved in meaning from a more metaphysical implication constrained to a human-selected element which they consider significant and finally today, superimposed into the selective simulated world of Artificial Intelligence. Further discourse on the intricacies of such human phenomena would require a separate paper. This paper will probe into the resulting relativism that stems from the disparate understanding of ontology.

### **Defining Relativism and Ontological Relativism**

This paper highlights the perspective of al-Attas and Nasr in constructing an argument against ontological relativism. To do so, we now define what relativism is. Analytically, the word ‘relative’ implies uncertain knowledge, while the -ism affixed to it, indicates a state of mind that anticipates and accepts this implication for lack of certainty in knowing. The Stanford Encyclopedia of Philosophy defines it as follows:

Relativism, roughly put, is the view that truth and falsity, right and wrong, standards of reasoning, and procedures of justification are products of differing conventions and frameworks of assessment and that their authority is confined to the context giving rise to them.<sup>17</sup>

In several works, al-Attas reminds us of the longstanding view within Islamic intellectual corpus regarding the relativists known as the *sufāstāyyah* (sophists). This was recorded by al-Nasafī and al-Taftazānī in the creed prose (*matn*) called ‘*Aqā'id al-Nasafīyyah*’.<sup>18</sup> Islamic scholars enlisted three groups of rhetoricians whose objectives serve other than the pursuit of true knowledge namely - *al-'inādīyyah* (the obstinate), *al-indīyyah* (the self-opinionated) and *al-lā adrīyyah* (the agnostics). The *al-'inādīyyah* insists that the world does not have any existence other than in human minds and so

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<sup>17</sup> On Relativism see Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/entries/relativism/> (accessed February 12, 2021)

<sup>18</sup> Syed Muhammad Naquib al-Attas, *The Oldest Known Malay Manuscript: The Aqā'id of al-Nasafī* (Kuala Lumpur: University Malaya Press:1988), 48.

there is no reality. The *al-indīyyah* upholds the right of every individual to assert their personal conjecture and so everyone's ideas can be accepted if it concurs with logical parameters. Al-Attas explains their view stating that "all knowledge, they say, is subjective, and the truth about anything is only one's opinion of it, thus they are considered as epistemological Subjectivists."<sup>15</sup> Finally, the *lā-adrīyyah* is content with stating that they do not know and can never know, which means they are constantly in doubt. Al-Attas explains his opposition to the relativism as espoused by these groups as follows:

The beliefs of these three groups, which form the basic elements of the position of the Sophists, are in direct opposition to Islam which, as I said, affirms the objectivity of knowledge and the existence of realities. It is obvious that such beliefs represent fundamental deviations from religion and from science and can bring about destructive consequences in human society.<sup>19</sup>

This poses a major obstacle to Islamic conceptualization of knowledge, which upholds truth and affirms the existence of realities.<sup>20</sup> Al-Attas refers to the method of the sophists as philosophical skepticism, resulting in relativism. Philosophical relativism has been around since the beginning of philosophy. The three categories of sophists, were first mentioned by Socrates in Plato's *Theaetetus* as referring to philosophers who made a career out of dialectics – and just like today's scholars, they might insist on the superiority of their opinion (*al-inādīyyah*), or feign ignorance about any authoritative opinion (*al-lā adrīyyah*) or claim that any opinion is as good as the next one (*al-indīyyah*). Whichever category we choose, the result works in opposition to the objective of the Islamic intellectual tradition – which is the search for truth and to affirm and verify that truth.<sup>21</sup>

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<sup>19</sup> Ibid.

<sup>20</sup> On the Western historical "problem of truth" refer to William Sahakian and Mabel Lewis, *Ideas of the Great Philosophers*, (NY: Barnes & Nobles: 1966), 23-28

<sup>21</sup> Ibid. 48-49 and Plato, *Thaetatus*, trans. Benjamin Jowett, <http://classics.mit.edu/Plato/theatu.html> (accessed March 1, 2021)

## Relativism in Science

Modern science as viewed from the perspective of Islamic epistemology, is not reliable due to its lack of a verifiable ontology. The presence of multiple competing theories and the construction of multiple paradigms of science, cast doubt on the ability of scientists to define true knowledge. It disproves the claim of science as authoritative knowledge.

We are now confronted with multiple theories that present various trajectories of human intellectual power (*'aql*) and with diverse results in the form of models (using physical objects, multi-dimensional illustrations and computer graphics) and of course mathematical formulae due to diverse methods of interpretations within a research program. All of them issue from different presuppositions about subject-object relationships - whether they be dichotomic, unified or entangled. Even among particle physicists, the definition of a particle is varied. These professional attempts at the definition of a particle include:

A particle is a *collapsed wave function*

A particle is a *quantum excitation of a field*

A particle is an *irreducible representation of the Poincaré group*

A particle might be a *vibrating string*

A particle is a *thing we measure in a detector*

The diverse viewpoints expressed above stem from the presuppositions embedded within each position. Such presuppositions can be generally identified as issuing from the mathematical philosophy of formalism versus structuralism.<sup>22</sup>

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<sup>22</sup> Both formalism and structuralism de-ontologizes objects that are being studied, such as particles and quarks. Stanford Encyclopedia of Philosophy explains formalism as the philosophy of mathematics which posits a mathematical proposition as representing an “abstract sector of reality”, much like the game of chess is used to model possible events including possible problems, anomaly and strategies without being in any way real or meaningful. In structuralism, the structures of the universe are studied by abstracting away from “the nature of objects (that) are instantiating those structures”. Structuralism is contrasted with the traditional view of mathematics as the science of number and quantity - which is referred to as ‘empty formalism’ because the number and quantity have no relationship to real existing things (ontology) other than being a representation of something (meaningless things). Explanation by A. Weir (2011) Stanford

Science journalist, Natalie Wolchover expresses it as follows:

With any other object, the object's properties depend on its physical makeup — ultimately, its constituent particles. But those particles' properties derive not from constituents of their own but from mathematical patterns. As points of contact between mathematics and reality, particles straddle both worlds with an uncertain footing.<sup>23</sup>

As Wolchover admitted, mathematics has not been employed to confirm reality in this scientific paradigm (program) as it is not able to verify it.<sup>24</sup> However, theoretical physicists believe mathematical modeling can determine what a particle might be, as it offers a possible explanation, which of course remains to be verified.

Take for example, the third definition of a particle which states that, “a particle is an irreducible representation of the Poincaré group” – this means a representation of various symmetrical possibilities.<sup>25</sup> We detect the importance of mathematical structure in the last definition, which states that a particle is a “thing we measure in a detector.”<sup>26</sup> This is a tautological statement which by virtue of its function of stating the obvious (such as a triangle is a “plane figure with three straight sides and three angles”) diverts the meaning from the subject or observer, by structuring the sentences to state the obvious. However, this does not deny the special function of mathematics as a verification instrument. The measurements are representatives of what the particles exhibit to the world, which mathematics capture in numbers and shapes, forming the structure of an unobservable entity. This is indeed a metaphysical aspect of quantum science that can no longer be denied.

Other definitions presented above are more privy to the influence or contribution of the human observer, such as the

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Encyclopedia of Philosophy <https://plato.stanford.edu/entries/structuralism-mathematics/> (accessed November 15, 2020).

<sup>23</sup> Natalie Wolchover, “What is a Particle?” in *Quanta Magazine*, <https://www.quantamagazine.org/what-is-a-particle-20201112/> (accessed November 12, 2020)

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid.

“collapsed wave function” despite being the result of an experiment with photons or electrons known as the Young Double Slit experiment is nonetheless a true event that occurred. The collapsed wave function is a state of affairs for particles whose wave-movement is neutralized by the overlap of two ripples of photons, electrons or other vibrating entities. Human intuition which scientists convey as ‘thought experiment’ allows for an understanding of phenomena through a multi-steps deduction or even, sudden analogical link generated in the mind between water ripple movements and the behavior of photons. Similarly a quantum excitation of a field is a definition based on the subject’s observation of localized particle effects over a limited area of space-time. It is but another property (quiddity) of the entity being investigated. The question is, can different manifestations of particles qualify as the defining statement above the others? How do we find the ontological ground of this entity called particles?<sup>27</sup>

In this preliminary stage of our research program, we will not attempt to answer those questions. Instead, we will outline the Islamic traditional perspectives on ontology of objects, subjects and the effects (or traces) of the Divine according to Nasr and al-Attas as contemporary scholars of Islamic philosophy. In order to understand their perspectives, we will analyze their criticisms of modern science, particularly in relation to ontology and metaphysics.

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<sup>27</sup> Amongst these definitions, the definition that takes into account the multiple views presented above, is string theory as stated in the fourth definition, a particle might be a vibrating string. Researchers placed even higher hopes in string theory: the idea that if you zoomed in enough on particles, you would see not points but one-dimensional vibrating strings. You would also see six extra spatial dimensions, which string theory says are curled up at every point in our familiar 4D space-time fabric. The geometry of the small dimensions determines the properties of strings and thus the macroscopic world. “Internal” symmetries of particles, like the SU(3) operations that transform quarks’ color, obtain physical meaning: These operations map, in the string picture, onto rotations in the small spatial dimensions, just as spin reflects rotations in the large dimensions. “Geometry gives you symmetry gives you particles, and all of this goes together,” Dimitri Nanopoulos made this statement in the article, “What is a Particle.” <https://www.quantamagazine.org/what-is-a-particle-20201112/>



## Truth Verification in Islamic Ontology

Islamic philosophy of science is most concerned with the truth-verification aspect of science. Both scholars consider science as knowledge in its universal meaning, which can lead us to the discovery of reality and truth. The assumption of science as a branch of knowledge that is most authoritative is viewed by both scholars as a reductionism that cannot be substantiated. Thus, science as argued in the epistemology of Islam, is concerned with the understanding of true reality – both reality as in our existence in this world, and Absolute Truth. As far as modern science is concerned, Al-Attas defines (modern) science as “the definition of reality.”<sup>28</sup> By this he means the physical reality (extra-mental) that is bound by space-time limitations. We will show the impact of this statement in due time. For Nasr, science as conveyed in its Latin etymology as ‘*scientia*’ - has deep metaphysical connotation yet refers to knowledge in a larger sense than just scientific knowledge, which is similar to al-Attas. To Nasr, metaphysics is an exact science, which he calls *scientia sacra* and defines as a “*theoria* of reality.”<sup>29</sup> Nasr describes metaphysics as “in fact (is) one and should be named metaphysics in the singular, is the science of the Real, of the origin and end of things, of the Absolute and, in its light, the relative.”<sup>30</sup> Both scholars essentially point to the fact that ‘science’ no longer conveys the deep and encompassing meaning it used to embody.

## Metaphysics of Islam as the Framework for an Islamic Philosophy of Science

Metaphysics of Islam refers to Sufism or the science of purification of the heart (*tazkiyyat al-nafs*). William Chittick considers Sufism as the third domain of human experience within the ambit of the Islamic worldview.<sup>31</sup> He states:

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<sup>28</sup> “Science is a definition of reality”, according to al-Attas in *The Concept of Education in Islam*, 2.

<sup>29</sup> Seyyed Hossein Nasr, *Man and Nature: The Spiritual Crisis of Modern Man* (London: Mandala: 1968), 81.

<sup>30</sup> Ibid. and Hahn, *Library of Living Philosophers: Seyyed Hossein Nasr*, 498.

<sup>31</sup> Ibid. Also Hahn, *Library of Living Philosophers: Seyyed Hossein Nasr*, (eds.) (Chicago: Open Court Press, 2001), 445-462. Seyyed Hossein Nasr, 498.

If we look at Islamic teachings as addressing three basic domains of human experience - doing, knowing, and being; or practice, doctrine, and realization; or islām, imān, and ihsān - then Sufism focuses specifically on the last, employing the first and the second, however, as its primary means to achieve this focus.<sup>32</sup>

He added that “The Sufis strove to achieve perfect *ihsān*, which involved, according to the Prophet’s definition, “worshiping God as if you see Him.” From the point of view of this “as if,” the world appears as a far different place than from the point of view of Islamic law, whose stance in relation to God is “we hear and we obey,” with no mention of ‘seeing’. Both kalam and most of Islamic philosophy accepted that there was nothing of God to be seen in this world, but that God could be thought about.”<sup>33</sup> The works of both scholars share that same objective of searching for reality and truth behind every object, including the most fundamental aspect of creation. Nasr focuses on the “conception of nature” while Al-Attas constructs his “formulation of the philosophy of science” based on the framework of Islamic metaphysics.<sup>34</sup>

Nasr and al-Attas reveal a philosophy of nature and science respectively (within a larger philosophy of knowledge), that is reflective of Islamic epistemology practiced by great Muslim scholars of the past – an epistemology that places revelation at the highest level and conform to its verification in judging other less authoritative branches of knowledge. Al-Attas distinguishes Islamic epistemology from those that are strictly philosophical as follows:

Our affirmation of Revelation as the source of knowledge of ultimate reality and truth pertaining both to created things as well as to their Creator provides us

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<sup>32</sup> William Chittick in the Foreword, to Al-Ghazali, *The Niche of Lights (Brigham Young University - Islamic Translation Series)*, trans. David Buchman, (Utah, US: Brigham Young University Press:1998), xii.

<sup>33</sup> Ibid.

<sup>34</sup> For more comprehensive comparisons of their criticisms read, Khalina Mohammed Khalili, *The Philosophy of Science in Islam from the Perspectives Syed Muhammad Naquib Al-Attas and Seyyed Hossein Nasr*, Ph.D. diss., (Universiti Teknologi Malaysia: 2021), 300.

with the foundation for a metaphysical framework in which to elaborate our philosophy of science as an integrated system descriptive of that reality and truth in a way which is not open to the methods of the secular philosophic rationalism and philosophic empiricism of modern philosophy and science.<sup>35</sup>

Foremost in the approach of the traditional scholars of Islam, is the Qur'an as a source of divine inspiration. This epistemological source is the nexus of communication between the Creator and His individual creations, provided that each of us has an open channel of communication at the center of our souls. In this way, we are tapping into the power of intellect embodied by individual men and women who are cognitively and spiritually grounded in the tenets of Islamic belief. The intellect ('*aql*) when expressed as intuition (*ilhām*) and imagination (*khayāl*) is a shining light that can guide all of humanity towards a certainty of knowledge based on reality and truth, and to avoid the pitfalls of relativism that are now evident in various disciplines of knowledge. This epistemological conviction is expressed by both al-Attas and Nasr. Revelation for al-Attas, refers to the Qur'an as revelation, and Muslims as the receptacles of this divine knowledge. Revelation for Nasr consists of both a universal kind of revelation and the particularized kind as intended for different communities in human history. This marks his argument towards religious conviction with a hint of relativism, and is reflected in his view on the cosmological doctrines of various religions and civilizations, including diverse doctrines within the Islamic milieu.

Nasr however, stresses that *scientia sacra* or metaphysics are not privy to relativity, just as mathematics are exact and convey absolute representation of reality. He explains it as follows:

This supreme science of the Real which in a certain light is the same as gnosis, is the only science that can distinguish between the Absolute and the relative, appearance and reality... It is only in its light that man can distinguish between levels of reality, states of being

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<sup>35</sup> Syed Muhammad Naquib Al-Attas, *Islam and the Philosophy of Science* (Kuala Lumpur: ISTAC: 1989), 9.

and be able to see each thing in its place in the total scheme of things.<sup>36</sup>

### **Nasr's Criticisms on De-ontologization of Cosmology**

To Nasr, the banishment of metaphysics marks the beginning of an ontological disconnection between man and nature. It is a consequence of the slippery slope into rationalism by Christian clerics such as the Aristotelian Thomists who are part of the Scholastics, culminating in a reductionism of knowledge that occurred in stages during the Late Medieval period, the Renaissance and the Enlightenment to usher the modern ideology which includes modern science and its ideology of scientism. According to Nasr, the secularization of Christianity follows these stages:<sup>37</sup>

1. Desacralization of the Cosmos
2. Desacralization of Man
3. Desacralization of the Absolute
4. Destruction from the Modern Age

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<sup>36</sup> Nasr, *Man and Nature* (London: Mandala: 1968), 81.

<sup>37</sup> The author analyzes Nasr's criticisms based on a series of reductionism that occurred at the hands of several philosophical schools and positions in her thesis (Khalina Mohammed Khalili: PhD thesis: 2021). Ibrahim Kalin, on the other hand, outlined Nasr's criticisms as follows: "Five main traits of modern science come to the fore in Nasr's critical analysis. The first is the secular view of the universe that sees no traces of the Divine in the natural order....The second feature is the mechanization of the world-picture upon the model of machines and clocks. Once couched in terms of mechanistic relations, nature becomes something absolutely determinable and predictable - a much needed safety zone for the rise of modern industrial society and capitalism. The third aspect of modern science is rationalism and empiricism.... The fourth trait is the legacy of Cartesian dualism that presupposes complete separation between *res cogitans* and *res extensa*, that is, between the knowing subject and the object to be known. With this cleavage, the epistemological alienation of man from nature comes to completion by leaving behind a torrent of pseudo-problems in modern philosophy, the notorious mind-body problem being a special case in point. The last important aspect of modern science is in a sense a culmination of the foregoing features, and it is the exploitation of nature as a source of power and domination - a fact not unknown to modern capitalist society." Ibrahim Kalin, "The Sacred Versus the Secular: Nasr on Science", in *Library of Living Philosophers: Seyyed Hossein Nasr*, L. E. Hahn, R. E. Auxier and L. W. Stone (eds.) (Chicago: Open Court Press, 2001), 453.

As a result of the development of the nominalist and materialist perspective by Thomists scholars (the Scholastics) on nature and religiosity, the ancient cosmology that grounds the framework of knowledge and symbolic structure of nature began to be replaced with a mathematized framework, making it more suited to be called cosmography rather than cosmology. This refers to the mapping of the universe based on quantified data on distance, size and others as opposed to the overarching view of the entities that permeates the universe, both physically-measured ones and unobserved entities, such as the classical monads. The quantification of celestial objects and motions along with the mechanistic view on phenomena is one example of desacralization and de-ontologization of the environment we live in.<sup>38</sup>

Nasr proposes a re-sacralization program based on his synthesis of perennial philosophy and Islamic philosophy. Following the worldview of perennial philosophy, there are two principles or elements of significance, namely hierarchy of knowledge and the inner-outer dimensions. These two elements mark the ontology of at least two realms of existence – the universe and man. In the perennial cosmology, the universe has God (or often referred to as the Absolute) at the top of the hierarchy, which is an ancient cosmology representing the existential processes variedly understood as either monism, pantheism or panentheism (each school of philosophy may subscribe to a particular one). Cosmology is the primary symbolism inherent in the hermeneutics of perennial philosophy. A scientist or scholar who can comprehend the inner significance of this cosmology can fathom deeper levels of knowledge due to his or her possession of a symbolist spirit that can perceive multiple ontological realms through the power of his or her intellect.<sup>39</sup>

This representation of the hierarchy of nature or “the great chain of being” – reflects various ontologies or degrees of existence

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<sup>38</sup> Nasr, *Islam and the Modern World*, 91.

Today, quantification takes the form of models and computer manipulations of telescopic photographs, such as the photographic construction of a black hole in December 2022. See Event Horizon Telescope, <https://eventhorizontelescope.org/blog/astronomers-reveal-first-image-black-hole-heart-our-galaxy> featuring the image here: <https://cdn.eso.org/images/large/eso2208-eh-t-mwh.jpg>

<sup>39</sup> Ibid.

that the human intellect has the capacity to penetrate. However, part of Nasr's criticisms of modernity is the loss of this power of human intellect.

### **Desacralization of Man and Nasr's Resacralization Project**

What does it mean for humanity to be desacralized? Nasr states that a desacralized man is one whose inner dimension is emptied out while his intellectual capacity is limited to the rational and logical spheres. Nasr differentiates this mental process from a higher ontological attainment by referring to it as ratiocination.<sup>40</sup> For Nasr, the symbolist spirit within man can be harnessed so long as he or she remains attached to metaphysics represented by the tradition that he or she came from or the religious or philosophical tradition that he or she adopts, whereby he or she becomes familiar with all the symbols of that tradition. With that perceptiveness along with the employment of his intellective intuition and/or illumination of both mind and sensory organs, Nasr assures his audience that such a man is the 'contemplative man' who can achieve an intellective and illuminating experience. Thus, by balancing his inner and outer dimension, the contemplative man attains to higher ontological levels that allow him or her to unlock the 'sacred' meaning behind symbols and to even allude to the deeper knowledge he has attained. Nasr states:

Symbols are ontological aspects of a thing, to say the least as real as the thing itself, and in fact that which bestows significance upon a thing within the universal order of existence. In the hierarchic universe of traditional metaphysics, it can be said that every level of reality is ultimately a symbol, only the Real being Itself as such. But on a more limited scale, one can say that symbols reflect in the formal order archetypes belonging to the principal realm and that through symbols the symbolized is unified with its archetypal reality.<sup>41</sup>

For Nasr, his strongest criticisms are directed more towards

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<sup>40</sup> Khalina Mohammed Khalili (2021), Ph. D. dissertation, 276.

<sup>41</sup> Nasr, *Knowledge and the Sacred*, 135; also Khalina Mohammed Khalili (2021) Ph.D. dissertation, 276.

modernity and its impact on the world-view of science than science as a corpus of knowledge. A change of perspective occurred at the hands of the logical positivists whom Nasr says “remove the last specter of metaphysical significance from modern science” by “establishing connections between mathematical and physical signs” called symbols. The logical positivists do not describe the science of the real, but instead prescribe how nature should be, by controlling and dominating its processes and casting its explanation in the edifice of formal logic. This prescriptive role of science de-ontologizes phenomena.<sup>42</sup> “The positivist interpretation of science is, in reality, an aim to de-ontologize science completely-not by shifting the ontological status from the physical domain to the Pythagorean-Platonic world of archetypes connected with mathematics, but by denying its ontological significance completely.”<sup>43</sup> With the development of formalism within philosophy of mathematics, objects and phenomena are detached from its ontological states and ironically become building blocks of facts *sans* meaning.

More investigation needs to be pursued in order to understand why Nasr highlights the significance of symbols in nature and calls for the revival of the ‘symbolist man’ (contemplative individuals) who can unlock their meaning, while simultaneously attacking the symbols ascribed by the philosophers of mathematics in formal logic. In the next section, we make a comparison between Nasr’s and al-Attas’s criticisms of modern science.

### **Al-Attas’s Criticisms of the Explanation of Science**

According to al-Attas, secularization is the threatening social and intellectual force throughout human history that culminates with modern science. However modern science itself is not a menace in its methods and body of knowledge, though it is far from neutral. He states that “in our time, the greatest challenge is the surreptitious encroaching of secularization as a philosophical programme into the social consciousness” of societies.<sup>44</sup> Al-Attas refers to the multiple

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<sup>42</sup> Khalina Mohammed Khalili (2021), Ph.D. dissertation, 207.

<sup>43</sup> Seyyed Hossein Nasr (1968, 1976), *Man and Nature*, 24-27.

<sup>44</sup> See Author’s Note in Al-Attas, *Prolegomena*, xi.

stages of ideological shifts that occurred since the period of ancient Greek philosophy to our times as a set of reductionisms within a philosophical program. This humanistic philosophical program is what al-Attas considers the instrument of secularization. The following is an outline of the path to secularization that Al-Attas refers to as a philosophical program:

1. Realism vs Nominalism
2. Empirical vs Rational (methodology) + pragmatism
3. Supremacy of Logic above Human Reason
4. Interpretation based on Symbolic Logic and Analytical Language
5. Postmodern Influences of Analytic philosophy

His criticisms trace the changes occurring in the explanation of scientific phenomena from that of a description of objects and phenomena to a prescription and even a projective role which natural philosophy cultivated with the shift from the Platonic school of idealism to Aristotelian's realism. In the modern period this prescriptive role of science is supported by formal logic to cultivate the construction of theoretical facts based on scientific convention.<sup>45</sup> This position of power results in the dominance of scientific knowledge or scientific imperialism in all fields of knowledge, and impacts the general public with the ideology of scientism.<sup>46</sup> However, the cultivation of science based on its nominalist values is antithetical to the discovery of the true essence of things, and is therefore not supportive of ontology.

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<sup>45</sup> For a logical and axiomatic treatment of the modern polemic on ontology in religion, also known as the ontological argument see Aqil Azmi B.A. thesis in which he argued that Godel's formal logic resumed from the presumptions of Kant, Descartes and Kripke etc. Aqil Azmi, *The Logic of Modality in Gödel's Ontological Argument*, B.A. thesis, (Harvard University: March 2024).

<sup>46</sup> Alexander Rosenberg defines scientism as "the unwarranted overconfidence in the established methods of science to deal with all questions, and the tendency to displace other "ways of knowing" even in domains where conventional scientific approaches are inappropriate, unavailing, or destructive of other goals, values and insights." Alex Rosenberg, *Philosophy of Science: A Contemporary Introduction* (3rd ed.) (New York: Routledge: 2012), 23.



## **The Importance of Ontology in Contemporary Science and al-Attas's Islamization Project**

Many ontological questions have been marred by skepticism, for which al-Attas blames Western philosophy for adopting 'doubt as an epistemological tool' an epistemological method that runs contrary to Islamic tradition and belief.<sup>47</sup> The question raised by Descartes, as the father of modernism, lingers on the same ontological questions – do we really exist? To Descartes, his ability to wonder (i.e. to doubt) about these ontological questions confirms that he exists. He raised the awareness that "I am thinking therefore I exist" (commonly translated as "I think therefore I am" (English) from the Latin, "*cogito ergo sum*"). The fact that humans exist and can grasp ideas individually, allows them to construct their version of reality shaped by Descartes, Kant and others through a systematic banishment of metaphysics. This brings us to the relativism of the 21st century.

Al-Attas deems doubt and skepticism as elements of the Western worldview which fuel the climatic episodes in Western prose such as the Greek Tragedies, Shakespeare's sonnets and even Freudian theory of psychoanalysis. This ingrained emotional baggage is highly illogical and thus rightly belongs in the category of superstition. He urges all scholars of Islam to partake in the formulation of theories or the explanation stage of scientific research. In other words, scholars of Islam and Muslim scholars generally, despite being educated in the field of humanities (especially the Islamic sciences), can be critical much like the philosophers of science who influenced the epistemology of science. They should exert their knowledge of Quranic revelation, the Prophetic tradition and other branches of Islamic knowledge upon the corpus of natural science in order to exhume all the corrupting elements embedded in its theoretical construct as well as any long-held presuppositions (including superstitions) such as their reliance on doubt, skepticism and falsification. The doubting mind is not capable of reaching certainty and attaining truth about reality. Al-Attas focuses on the attempt to verify reality as part of the Islamization of contemporary

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<sup>47</sup> Al-Attas, *Islam and the Philosophy of Science*, 8-9 and al-Attas, *Prolegomena to the Metaphysics of Islam* (Kuala Lumpur: Universiti Teknologi Malaysia: 2014), 1-118.

knowledge, for which modern science can play a role of providing evidence and defining the reality of objects and phenomena.

### **Islamic Philosophy of Science and Nature**

Based on the criticisms of both Nasr and al-Attas, we can develop a corpus of natural science as well as other areas of knowledge that are based on the worldview of Islam. The philosophical positions of idealism and realism sit in an equilibrium in the traditional Islamic perspective that stresses the role of human intellect or noumena. This similarity with idealism was treated in the author's thesis as follows, "The trans-empirical and trans-rational instrument with the participation of the human faculty of the intellect, can access the permanent entities (*a'yān thābitah*), similar to the Platonic ideas so as to form the conceptual understanding of the universal attribute of objects."<sup>48</sup>

Al-Attas and Nasr recognize the functioning of a supra-rational intellect that transcends the average reasoning ability of the common man. Nasr's efforts are directed towards reviving man's reliance on this power of the soul. The intellectual capacity of individuals are reflected in his language, and each scholar therefore places certain emphasis on language - for Nasr it is symbolism and for al-Attas it is semantics.<sup>49</sup> Through a method of contemplation and illumination, Nasr calls for a return to the traditional method which employs symbolism in the interpretation of nature. Nasr believes that the cultivation of the individual's intellectual and illuminative reasoning has an ontologically transformative power that can lift one to ever higher realms of existence culminating in the self-realization (gnosticism). Achieving gnosis is the highest aim of re-sacralization according to Nasr, which he expresses as when "knowledge and being coincide; it is there that science and faith find their harmony."<sup>50</sup> Nasr attempts to revitalize a method of scientific interpretation according to the perennial epistemology using English (and other

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<sup>48</sup> Khalina Mohammed-Khalili, unpublished Ph.D. dissertation, 2021; 285;

<sup>49</sup> Ibid. To understand more on the significance of semantic analysis, refer to Salina Ahmad (2017) *Al-Attas' Conception of Language and His Utilization of Semantic Analysis*, unpublished PhD dissertation, UTM.

<sup>50</sup> Ibid. 266-7.

European languages) as the contemporary medium of transmission. Thus, for Nasr languages along with the symbolisms that are contained within it play an important function in returning the ontology of nature and our perception of it. Nasr had cited the metaphorical nuances contained in ancient prose of English, French and other European languages, which render them capable of delivering metaphysical knowledge. He alludes to the possibility of delivering the metaphysical teachings of Mulla Sadra into modern languages, and therefore making them accessible to contemporary seekers of knowledge.<sup>51</sup>

The use of symbolism however, is challenged by ambiguity and personal hermeneutics when symbols are not understood correctly by the people receiving the message. Thus, symbols cannot always offer accurate meaning intended by the source of a symbol, metaphor or allegory. A symbol might have different interpretations based on cultures and religions. A symbol might be accessible to describe the higher levels of meaning of objects, but the same symbol might infer different meanings to different groups of people. Its possibility of verification as true knowledge, is thus, limited. However, this is acceptable based on the perennial hermeneutics that Nasr propagates. Al-Attas considers hermeneutics to be outside of the Islamic intellectual traditions, and relies upon the interpretation method of *tafsīr* and *ta'wīl*, which is not elaborated upon here due to space limitation.<sup>52</sup> For al-Attas, language is the most important vehicle of reasoning and for the cultivation of the intellect. He highlighted this relationship in his semantic method of analysis for the preservation of linguistic accuracy. Through his semantic method, al-Attas demonstrates how to rely upon the use of a scientific language in writing definitions of objects and phenomena that reflect their true ontology. According to al-Attas the scientific language that can perform this role is the Arabic language and other Islamic languages that follow the grammar and morphology of Arabic. As such it is imperative for Muslim scholars to continuously revise their definitions of objects and phenomena through the publications of

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<sup>51</sup> Khalina Mohammed-Khalili (2021), unpublished Ph.D. dissertation, 262-270.

<sup>52</sup> Seyyed Hossein Nasr, *Science and Civilization in Islam* (New York: Barnes and Noble Books: 1968), 337.

lexicons, dictionaries and encyclopedia. Based on this aspect of al-Attas's philosophy of knowledge, we can see why he reserves his strongest criticisms to the philosophers of language amongst the logical positivists and analytic philosophers.<sup>53</sup> Semantic change and infiltration of alien concepts occur frequently in modern languages, and al-Attas believe that these "two linguistic factors...can corrupt the truth-value and metaphysical foundation of knowledge."<sup>54</sup>

Today, science is a competitive enterprise that is sometimes associated with the production of statements that report scientific findings known as 'facts' and 'information'. In certain cases, these facts are constructed to fit the intended hypothesis or for the purpose of achieving commercial gains or political clout.<sup>55</sup> Oftentimes due to scientism, half-truths are presented as a possible likelihood or even marketed as a verified phenomenon to the ignorant general public, putting the integrity of science at risk. The pursuit of science under such circumstances cannot be considered as the pursuit of true knowledge. In such an academic climate, diverse and opposing theories can be endorsed after each one is filtered through its prospective reductionist lens that separate each theory into paradigms of relativism, pluralism and post-truths. Al-Attas's philosophy of science aims to protect knowledge from being tainted with falsehood and unverified assumptions, as he states:

...(T)he study of nature by science ought not to be reduced to the methods of empiricism and rationalism that operate solely on the world of objects or events in space and time and their relations. The statements and general conclusions derived from these methods must be reformulated, and the methods themselves modified,

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<sup>53</sup> Read on *tafsir* and *ta'wil* in Khalina Mohammed Khalili, Ph.D. dissertation:2021, 153-160.

<sup>54</sup> Refer to my discussion on postmodern influences of the school of analytical philosophy in Khalina Mohammed Khalili, Ph.D. dissertation: 2021, 108-122.

Refer to pages 169-170 which discuss the two factors as semantic change and infiltration of alien key concepts and terminology such as evolution, development, faith et cetera

<sup>55</sup> Bruno Latour and Wolgar, S., *Laboratory Life: The Construction of Scientific Facts*. (2nd ed.) (New Jersey: Princeton University Press: 1986).

such that they can be integrated into a unified system that discloses the ultimate Reality in positive terms.<sup>56</sup>

The unified system mentioned here refers to the metaphysics of Islam, which is the study of higher Sufism. The study of Sufism or *tasawwuf* does not necessarily mean the adoption of the Sufi-lifestyle or becoming a Sufi. However, this is a cursory statement about what it means to come to terms with the significance of Sufism in the Islamic intellectual history and tradition. Sufism was a reality without a name in the life of the early Muslims. The current impact of modernism in Islamic thought has cast a negative light on this science relating to the purification of the hearts (at its foundational level of discourse). At its higher level of discourse, known as theoretical Sufism or *tasawwuf al-nazariyyah* (or Irfan for Shi'a Muslims), this science is essential to every Muslim for it casts a positive light on the true meaning of existence and provides answers to complex and urgent existentialist questions.

### **Conclusion**

In this paper, we attempted to show that Islamic metaphysics or theoretical Sufism is the foundation of the Islamic philosophy of science. In our modern classification of knowledge, metaphysics no longer occupy the top position in the hierarchy of knowledge, because it is now replaced by mathematics or science. These two, along with technology and engineering that make up STEM, are the prerequisite branches of knowledge that are considered essential for the survival of the current materialistic civilization. Mathematics is the scaffold for certain presuppositions of science because through symbols and numbers, scientists and mathematicians assume that their emotional and metaphysical (read superstition) tendencies are controlled. With skepticism as a guide like shadows in the cave, modern philosophers and scientists produce various hypotheses that can be crafted into explanations of science or theories. These theories co-exist as part of the relativist framework. However, within this relativist framework, lurks an opportunity for an expansion of the scientific scope to include metaphysics as an element of science. Islamic scholars and philosophers of science have the prerogative to

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<sup>56</sup> Syed Muhammad Naquib al-Attas, *A Commentary on the Hujjat al-Siddiq*, 50.

reaffirm the significance of metaphysics in natural science and all branches of knowledge.

Returning to the definitions of particles discussed previously, what matters is the search for the true meaning of a particle, among other things. In exploring what is meaningful rather than just practical for description or whatever fits into a prescriptive formula, the human intellect as a subjective participant has the most significant role. Ironically, in the search for true knowledge, there exists the possibility of not knowing. This limit of truth begs the humility of the seeker of knowledge to admit the true ontology of an object when it is not knowable to the human intellect. However, the arguments we delved into in this paper have highlighted two sources of ontological verification in the secular and religious framework respectively, namely mathematics and True revelation - which Muslims affirm to be the Quran.

## TRANSLITERATION TABLE

### CONSONANTS

Ar=Arabic, Pr=Persian, OT=Ottoman Turkish, Ur=Urdu

Ar	Pr	OT	UR	Ar	Pr	OT	UR	Ar	Pr	OT	UR	
ء	ب	پ	پ	ز	ز	ز	ز	گ	—	g	g	g
ب	ب	ب	ب	ژ	—	—	ř	ل	l	l	l	l
پ	پ	پ	پ	ژ	—	zh	j	م	m	m	m	m
ت	ت	ت	ت	س	s	s	s	ن	n	n	n	n
ث	—	—	ṭ	ش	sh	sh	ş	ه	h	h	h <sup>1</sup>	h <sup>1</sup>
ث	th	th	th	ص	ş	ş	ş	و	w	v/u	v	v/u
ج	j	j	c	ض	ḏ	ż	ż	ی	y	y	y	y
چ	—	ch	çh	ط	ṭ	ṭ	ṭ	ة	-ah	—	—	-a <sup>2</sup>
ح	ḥ	ḥ	ḥ	ظ	ẓ	ẓ	ẓ	ال	al <sup>3</sup>	—	—	—
خ	kh	kh	kh	ع	‘	‘	‘	—	—	—	—	—
د	d	d	d	غ	gh	ğh	ğh	—	—	—	—	—
ڈ	—	—	d	ف	f	f	f	—	—	—	—	—
ذ	dh	dh	dh	ق	q	q	q	—	—	—	—	—
ر	r	r	r	ك	k	k/g	k/ñ	—	—	—	—	—

<sup>1</sup> – when not final

<sup>2</sup> – at in construct state

<sup>3</sup> – (article) al - or l-

### VOWELS

	Arabic and Persian	Urdu	Ottoman Turkish
Long	ا	ā	ā
	آ	Ā	—
	و	ū	ū
	ي	ī	ī
Doubled	ي	iy (final form i)	iy (final form i)
	و	uww (final form ū) uvv (for Persian)	uvv
Diphthongs	و	au or aw	ev
	ی	ai or ay	ey
Short	ا	a	a or e
	ا	u	u or ū
	ا	i	o or ö
	ا	i	i

### URDU ASPIRATED SOUNDS

For aspirated sounds not used in Arabic, Persian, and Turkish add h after the letter and underline both the letters e.g. جھ jh گھ gh

For Ottoman Turkish, modern Turkish orthography may be used.

# AL-SHAJARAH

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