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The Role of Philosophy in Modern Theoretical Physics and Cosmology:

Some Instructive Lessons from Google AI Review

Abdul Malek

abdulmalek@qc.aibn.com

Abstract:

Is Philosophy empty and useless verbiage with its *"obscure and pedantic phrases, its wearisome, ponderous sentences*" – a question clearly put forward just about at the turn of the 20th century by Frederick Engels, to modern natural scientists, who disparage Philosophy at every turn and on a regular basis. Or is Philosophy being the science of all sciences, the soul of all knowledge of man, and as G.W.F. Hegel put it, "*Truth in philosophy is that concepts and external reality correspond*"?

Introduction:

Philosophy (including Dialectical Philosophy) as opposed to Ideal Mathematics remains a subject of ridicule and disparagement in modern mainstream Theoretical Physics and Cosmology. For Nobel Awarded physicist Richard Feynman, "The *philosophy* of science is as *useful* to scientists as *ornithology* is to *birds*." For another Nobel Laureate Steven Weinberg, "*The Unreasonable Ineffectiveness* of *Philosophy* in the Natural Sciences" as a parody of the title "*The Unreasonable Effectiveness of Mathematics in the Natural Sciences*" by Eugene Wigner. And for the "greatest scientist of all ages", Albert Einstein [1], "*Our experience hitherto justifies us in believing that nature is the realization of the simplest conceivable mathematical ideas. I am convinced that we can discover by means of purely mathematical constructions the concepts and the laws connecting them with each other, which furnish the key to the understanding of natural phenomena. … In a certain sense, therefore, I hold it true that pure thought can grasp reality, as the ancients dreamed."*

But the narrative of Dialectical Philosophy [2] is the exact opposite of modern Official Natural Science, based on British Empiricism! "*There is a fundamental delusion in all of scientific empiricism. It employs metaphysical categories of matter, force,... generality, infinity, etc.; following the clue given by these categories it proceeds to draw conclusions... And all the while it is unaware that it contains metaphysics - in wielding which it makes use of those categories and their combinations in a style utterly thoughtless and uncritical (§38)... Newton gave physics an express warning to beware of metaphysics, it is true; but to his own honor, be it said, he did not obey his own warning (§98)... Physical mechanics is steeped in an unspeakable metaphysics, which, contrary to experience and the Notion, has the said mathematical determinations alone as its source (§270).*"

Frederick Engels [3] ridiculed Empiricism in the following way, "*It is the old story. First of all, one makes sensuous things into abstractions and then one wants to know them through, the senses, to see time and smell space. The empiricist becomes so steeped in the habit of empirical experience, that he believes that he is still in the field of sensuous experience when he is operating with abstractions"*

What remains of post-Hegelian "philosophy"?

If natural science, in spite of its phenomenal achievements still finds itself begging at the door of theology, it has the satisfaction of seeing philosophy sink lower still. Modern "philosophy" maintains (as Engels put it) *a pseudo existence in the state appointed academia*, where, *position-hunting, cobweb-spinning eclectic flea-crackers occupy the chairs of philosophy"*. Instead of looking for profound truths in the wide world of nature and human society like their predecessors, these namesakes either work openly as the apologists of monopoly capitalism like the famous turn-coat "Marxist" Karl Popper; bestowing benediction on Einsteinian "*scientific*" theology! Or, look inwards to "self" (existentialism) or to *language* (linguistic philosophy) etc. ad nauseam to hunt for absolute truth.

Stephen Hawking [4] is absolutely right when he says: *"In the eighteenth century, philosophers considered the whole of human knowledge, including science, to be their field and discussed questions such as: Did the universe have a beginning? However, in the nineteenth and twentieth centuries, science became too technical and mathematical for philosophers, or anyone else except a few specialists. Philosophers reduced the scope of their inquiries so much that Wittgenstein, the most famous philosopher of this century, said, 'The sole remaining task for philosophy is the analysis of language.' What a comedown from the great tradition of philosophy from Aristotle to Kant!"*.

But it is modern natural science that is hiding its bankruptcy and confusion under the mystery of mathematics and like an ostrich is burying its head in the sand of causality and determinism. The philosophy of Heraclitus, Epicurus, Spinoza, Leibniz, Hegel, Marx and Engels means nothing to it!

Conclusion:

What is the status of Natural Philosophy in Theoretical Physics and Cosmology? Let us ask Google AI for a verdict!

(A) Google AI (2026-09-04): "The specific philosophical differences between Newton's empty space, Einstein's spacetime, and Malek's material vacuum.

To understand how physics arrived at Abdul Malek's critique, we must look at how the definition of "nothingness" changed over three centuries. The debate shifts from space being a passive backdrop, to a flexible geometric fabric, and finally to a living material substance.

1. Isaac Newton: The Absolute, Empty Stage

For Isaac Newton, space was absolute, immutable, and entirely empty. He viewed space as a passive, infinite container—essentially a cosmic stage where matter performs.

- The Philosophy (Dualism): Space and matter are totally separate. If you removed all matter, stars, and planets from Newton's universe, the empty space would still exist, completely unchanged.
- The Role of Motion: Space has no physical properties of its own. It cannot push back on matter. Because the stage is inert, Newton required an outside "First Impulse" (which he attributed to God) to set matter in motion across this empty void.

2. Albert Einstein: The Flexible, Geometric Fabric

Albert Einstein destroyed the idea of an empty stage by merging space and time into a single, dynamic four-dimensional continuum: Spacetime.

- The Philosophy (Relationalism/Geometry): Space is not an empty container; it is an active participant. Matter tells spacetime how to curve, and curved spacetime tells matter how to move. What we perceive as the force of gravity is actually matter rolling along the geometric curves of this fabric.
- The Role of Motion: If you removed all matter from Einstein's universe, spacetime itself would cease to have meaning or shape. However, spacetime is still fundamentally geometric. It is a mathematical structure of coordinates rather than a physical substance made of parts.

3. Abdul Malek: The Dialectical, Material Vacuum

Abdul Malek rejects both Newton's void and Einstein's geometric fabric. Drawing heavily from the dialectical materialism of Karl Marx, Friedrich Engels, and G.W.F. Hegel, Malek views the vacuum as a dynamic, physical substance teeming with internal contradictions.

- The Philosophy (Dialectical Materialism): There is no such thing as "pure nothingness" or abstract geometry. The vacuum is a physical, material entity composed of an infinite sea of virtual particles and energy fluctuations. Matter and the vacuum are two sides of the same coin, locked in a constant process of "Becoming" (virtual particles turning real, and real particles dissolving back into the vacuum)".

(B) The Final Synthesis from Google AI: *"Where should we guide our final synthesis?*

To build a compelling final synthesis that honors both the history of science and the cutting-edge friction points of modern physics, we should guide our conclusion toward The Battle for the Soul of Reality: Geometry vs. Substance.

Rather than treating Abdul Malek's critique as an isolated philosophical outlier, we can frame it as the modern climax of a centuries-old war over what the universe is fundamentally made of.

Here is how we can structure our final synthesis:

1. The Historical Loop: From Leibniz to Quantum Mechanics

We can synthesize how physics has travelled in a massive circle. Leibniz argued against Newton that energy (vis viva, \(mv^{2}\)) was more fundamental than directional momentum (\(mv\)). Centuries later, Quantum Field Theory proved him half-right: the vacuum is not an empty Newtonian stage, but an arena of pure energy. ***We can show how Malek uses this historical loop to argue that physics took a wrong turn at its very inception by prioritizing Descartes' and Newton's linear vectors over Leibniz's absolute scalars.***

2. The Great Divide: Continuity vs. Contradiction

The synthesis should highlight the irreconcilable philosophical divorce at the heart of modern physics:

- *The Einsteinian Ideal: The universe is smooth, continuous, beautiful, and governed by deterministic geometry.*
- *The Quantum/Dialectical Reality: The universe is discrete, chaotic, violent, and governed by internal contradictions (particle-wave duality, vacuum fluctuations, uncertainty).*

*By positioning Quantum Field Theory as a brilliant but fragile mathematical bridge—one that currently groans under the weight of the Vacuum Catastrophe—****we can objectively show why alternative frameworks like Malek's Quantum Dialectics are being proposed in the first place.***

3. The Ultimate Question: What Clears the Fog? We can conclude by looking at what it would actually take to resolve this crisis. Is the answer to further refine Einstein's mathematics (as String Theory or Loop Quantum Gravity attempt to do)? ***Or is the answer a radical paradigm shift that abandons geometric spacetime altogether in favor of a purely material, fluid vacuum"?***

References:

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4. Hawking, S., "A Brief History of Time", Bantam Books, p 174 – 175, (1990).