No less a figure than <u>Eugene Wigner</u>, a Nobel Prize winner in physics, claimed that materialism — at least with regard to the human mind — is not "logically consistent with present quantum mechanics." And on the basis of quantum mechanics, **Sir Rudolf Peierls**, another great 20th-century physicist, said, "the premise that you can describe in terms of physics the whole function of a human being ... including [his] knowledge, and [his] consciousness, is untenable. There is still something missing." – <u>Source</u>

Erwin Schrödinger said "Consciousness cannot be accounted for in physical terms. For consciousness is absolutely fundamental. It cannot be accounted for in terms of anything else." [1]

Werner Heisenberg, who came up with the uncertainty principle wrote "The ontology of materialism rested upon the illusion that the kind of existence, the direct 'actuality' of the world around us, can be extrapolated into the atomic range. This extrapolation, however, is impossible...Atoms are not things."

"[This] frame was so narrow and rigid that it was difficult to find a place in it for many concepts of our language that had always belonged to its very substance, for instance, the concept of mind, of the human soul or of life. Mind could be introduced into the general picture only as a kind of mirror of the material world." – Of materialism, Werner Heisenberg wrote

"As Heisenberg explained, physicists among themselves have long stopped thinking of atoms as things. They exist as potentialities or possibilities, not objects or facts. And yet, materialism persists." – Mark Vernon, "It's time for science to move on from materialism" | The Guardian

"As a man who has devoted his whole life to the most clear headed science, to the study of matter, I can tell you as a result of my research about atoms this much: There is no matter as such. All matter originates and exists only by virtue of a force which brings the particle of an atom to vibration and holds this most minute solar system of the atom together. We must assume behind this force the existence of a conscious and intelligent Mind. This Mind is the matrix of all matter." — Max Planck, *Das Wesen der Materie*, 1944

"Then came our Quantum theory, which totally transformed our image of matter. The old assumption that the microscopic world of atoms was simply a scaled-down version of the everyday world had to be abandoned. Newton's deterministic machine was replaced by a shadowy and paradoxical conjunction of waves and particles, governed by the laws of chance, rather than the rigid rules of causality. An extension of the quantum theory goes beyond even this; it paints a picture in which solid matter dissolves away, to be replaced by weird excitations and vibrations of invisible field energy. Quantum physics undermines materialism because it reveals that matter has far less "substance" than we might believe. But another development goes even further by demolishing Newton's image of matter as inert lumps. This development is the theory of chaos, which has recently gained widespread attention." — Dr. Paul Davies and John Gribbin, *The Matter Myth*, Chapter 1

"If, on the other hand, we accept the more traditional understanding of quantum mechanics that goes back to von Neumann, one is led by its logic (as Wigner and Peierls were) to the conclusion that not everything is just matter in motion, and that in particular there is something about the human mind that transcends matter and its laws." – Dr. Stephen M. Barr Source

"[T]he death of determinism is not the only deep conclusion that follows from the probabilistic nature of quantum theory. An even deeper conclusion that some have drawn is that materialism, as applied to the human mind, is wrong." – Dr. Stephen M. Barr <u>Source</u>

"As long as only physical structures and mechanisms are involved, however complex, their behavior is described by equations that yield only probabilities—and once a mind is involved that can make a rational judgment of fact, and thus come to knowledge, there is certainty. Therefore, such a mind cannot be just a physical structure or mechanism completely describable by the equations of physics." – Dr. Stephen M. Barr Source

"Like almost every student over the past 100 years, I was shocked by quantum mechanics, the physics of the micro-world. In place of a clear vision of little bits of matter that explain all the big things around us, quantum physics gives us a powerful yet seemly paradoxical calculus. With its emphasis on probability waves, essential uncertainties and experimenters disturbing the reality they seek to measure, quantum mechanics made imagining the stuff of the world as classical bits of matter (or miniature billiard balls) all but impossible." – Dr. Adam Frank

"But if one wants to apply the materialist position to a concept as subtle and profound as consciousness, something more must clearly be asked for. The closer you look, the more it appears that the materialist (or 'physicalist') position is not the safe harbor of metaphysical sobriety that many desire." – <u>Dr. Adam Frank</u>

"the ground of materialism becomes far more shaky when we attempt to grapple with the more profound mystery of the mind, meaning the weirdness of being an experiencing subject. In this domain, there is no avoiding the scientific and philosophical complications that come with quantum mechanics." – Dr. Adam Frank

Reference

[1] "General Scientific and Popular Papers," in Collected Papers, Vol. 4. Vienna: Austrian Academy of Sciences. Friedr. Vieweg & Sohn, Braunschweig/Wiesbaden. p. 334