

Concepts of “Life” and “Soul” From the Standpoint of Quantum Physics

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Quantum physics in its present-day form does not provide a complete description of the behavior of living matter. A molecule is a quantum system and, therefore, its behavior according to physics is governed by the probabilistic laws. Biomolecules in a living organism, however, act as the well-tuned mechanisms. Schrödinger was the first who pointed this out in his book *What is Life?* He wrote: “A single group of atoms existing only in one copy produces orderly events, marvelously tuned in with each other and with the environment according to most subtle laws... we are here obviously faced with events whose regular and lawful unfolding is guided by a ‘mechanism’ entirely different from the ‘probability mechanism’ of physics.” The deterministic behavior of living matter is a serious argument to introduce “hidden variables” in quantum mechanics. That would allow the causal interpretation of quantum formalism. N. Sotina has shown in her work that the causal approach gives a mathematical base with which to suggest that some spatial structures in the physical vacuum, composed of elements of non-molecular nature, accompany any quantum object. The more complex a quantum object is, the more complex is the structure accompanying it in the physical vacuum. Biomolecules in a living organism, are in continuous interactions. It can be demonstrated that the structures in the vacuum, that are accompanying the biomolecules, carry the information and energy necessary to control biochemical processes. The idea that a living organism is not just a material substance (i.e. an accumulation of molecules) but also some non-molecular structure in the physical vacuum, has existed throughout history. These ideas can even be found in the works of ancient Greek philosophers. The Greeks introduced a concept of a *soul* to distinguish animate from inanimate. They viewed the soul as a substance, composed of a finer kind of matter than the body, which a person loses in death. Epicurus, for example, was advocating for the material nature of the soul and suggested that a new substance must be introduced for its description. The Greeks believed that as the soul has a material nature it can affect the body.